

EXHIBIT 7

Preliminary Expert Report on W. R. Grace Trust

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1. Overview of Report

The proposed consensual reorganization plan in this case establishes the W. R. Grace and Co. Personal Injury Settlement Trust (“Grace Trust” or “Trust”) as the exclusive vehicle for paying current and future asbestos bodily injury claims against any of the Debtors.

As experts for the W. R. Grace Official Committee of Asbestos Personal Injury Claimants, my company, Legal Analysis Systems (“LAS”) and I provide technical and quantitative assistance in the development of the Trust Distribution Procedures (“TDP”) that will be used by the Trust. This report summarizes the work that we did on these matters and presents our forecast of the Trust’s liability for current and future asbestos bodily injury claims that will be channeled to the Trust.

After briefly summarizing my experience (Section 2), I discuss the relationships between our liability forecasts for the Trust versus the forecasts of Grace’s liability from my report for the Estimation Hearing in this case. The two forecasts differ: Grace’s liability for asbestos claims in the bankruptcy and the value of those claims are based on how the claims would be resolved in the ordinary course of litigation of the claims. In contrast, the values of claims filed with the Trust and the Trust’s liability are determined by the bankruptcy plan, specifically the Trust’s TDP. In Section 3, I discuss how these two forecasts are similar (e.g. both use the same forecasts of number of submitted claims) and how they differ.

In Section 4, I discuss key provisions of the Trust’s TDP and how it exemplifies and is derived from a standard TDP that has been used in forming most asbestos trusts during this decade. I discuss analyses that underlie the application of this standard TDP to the history and specifics of the Debtors in this case. Then I discuss some of the particular issues raised by claims from Libby Montana and how the TDP accommodates those claims within a structure that provides similar treatment to claims from all jurisdictions.

In Section 5, I discuss and present our forecasts of the Trust’s liability for all present and future asbestos bodily injury claims. The liability ranges from \$6.3 billion to \$9.3 billion, with \$7.4 billion as my preferred estimate (all present-valued to 2010). I also compared the Trust’s forecast liabilities under the TDP to forecasts of what the Trust would have to pay if it resolved claims by returning to tort litigation and settlements. Using the TDP of the proposed reorganization plan, the Trust’s liabilities were lower than its liability would be in tort litigation. The TDP could save up to \$1 billion in liabilities compared to litigation.

2. Dr. Peterson's Qualifications

I have been retained as an expert by the W. R. Grace Official Committee of Asbestos Personal Injury Claimants ("ACC") on matters of estimation and treatment of asbestos bodily injury claims. My report for the Estimation Hearing in this case¹ described my past research, publications and expert work on such matters (in Section 2).

I summarize here my qualifications to provide the subject matter of this report: development and estimation of liability for the Trust, which will be formed by the proposed consensual reorganization plan.²

As a member of the research staff for RAND's Institute for Civil Justice I have studied and written on trusts and claims processing facilities in mass tort cases. From 1990 through 1995 I worked as "the Special Advisor" and special master for Judges Jack B. Weinstein and Burton Lifland in restructuring the Manville Trust, which had been formed in 1988 as the first asbestos trust but had soon become insolvent. After 1995 I continued to serve as the Special Advisor to the Trust, its beneficiaries and the Courts in implementing and changing as needed the restructuring plan. Since July 2007, I have been a trustee of the Manville Trust. I have also been a trustee of the Fuller Austin Settlement Trust since 1998, another asbestos trust, and a director of nonprofit corporations owned by each trust to process asbestos claims.

I have testified in court as an expert eleven times about other asbestos trust TDPs and/or liabilities of asbestos trusts.

During the past seventeen years I have provided technical and quantitative support for drafting TDPs for many newly formed trusts, most based on the principles and structure of Manville's current TDP, adopted in 2002. I serve as an expert for many asbestos trusts both on matters of estimating liabilities under the trust's TDP and on technical matters involving operations of the TDP.

In the course of my work as an expert for the ACC I provided technical consulting about the Trust Distribution Procedures proposed for the Trust and liabilities that would likely arise under the TDP. This report describes and provides background for that work and presents LAS's forecasts of Trust liability under the TDP.

1. W. R. Grace Projected Liabilities for Asbestos Personal Injury Claims As of April 2001, by Mark A. Peterson of Legal Analysis Systems dated June 2007, revised January 2009. This report is identical to the report of June 2007 except that it incorporates several arithmetic corrections of nonmalignant forecasts which were provided to other parties to the estimation prior to my deposition.

2. My resume is attached as Exhibit 1.

3. Two Differing Forecasts of Liability for Asbestos Bodily Injury Claims

My previous report for the Estimation Hearing provided a detailed description of our forecast of Debtors' liability for asbestos bodily injury claims--the methods, data, rationale, analyses and results. The report described Grace's liability in the tort litigation system. How many pending and future claims would Grace receive? How much would Grace have to pay to liquidate and resolve those claims within the tort litigation process that determines values for such claims (mostly through mutual agreements to settle rather than fully litigate claims)?

Rather than repeating the discussion and analysis from the estimation report, I have attached my estimation report as Exhibit 2.

For the most part, issues involving the Trust are different from those addressed in my earlier estimation report. For example, while the estimation report forecasts the amount that Grace would have to pay to resolve asbestos claims within the litigation (and ancillary settlement) process that establishes values for such claims, this report forecasts how much the Trust would have to pay to resolve claims through the processes of the Trust Agreement and its TDP, which the consenting parties have accepted as the bases for resolving asbestos claims in the future. The Trust-TDP processes differ in many ways from the litigation process that Grace faced before bankruptcy.

- Through the TDP, the proposed plan adds conditions and requirements for payment by the Trust. These stricter requirements have been accepted by all consenting parties, including asbestos bodily injury claimants, as part of the proposed plan. Such strict requirements were never accepted by asbestos plaintiffs in Grace's pre-petition litigation and Grace could not successfully have imposed such requirements.
- Because of these new, stricter requirements, the Trust will pay a smaller percent of claims than Grace had paid in litigation.
- Because the Trust will now be paying fewer, but more qualified claimants who have satisfied the stricter new requirements, the Trust will value claims in amounts higher on average than settlements in litigation.
- The Trust will pay claimants more quickly than in litigation, both because the TDP process is more streamlined and also because litigation delays in state and federal courts are far longer than processing times under a TDP.

3.1. Parameters Common to Both Liability Forecasts

Even though the Trust-TDP process is essentially different from the litigation process that I addressed in my estimation report, for this report I carry over some of the discussion and analyses from the estimation report, referencing relevant sections from the earlier report.

Our present estimation of Trust liability is based on two key parameters from the estimation report:

- **Forecast Number of Claims.** Trust liability forecasting starts with and is based on the same number of claims forecast in the estimation report. The Trust is the conduit for paying all asbestos bodily injury claims that will be brought against Grace. Therefore, I assume that the Trust will receive and face the same set of claims that Grace would have received in tort litigation.
- **Forecast Rejection Rates.** I estimate rates at which the Trust will reject claims by first excluding from payment the same percent of claims that I estimated would have been rejected by Grace in litigation. I then assume that more claims will be rejected by the Trust because of

the stricter requirements of the Trust's TDP. My estimation report estimated the percent of claims for each disease that Grace would reject in litigation primarily for having shown no asbestos exposure caused by Grace or no proof of an asbestos disease. I assume here that the Trust will refuse to pay similar percentages of claims for the same reasons. But in addition, the Trust will apply more restrictive requirements of its TDP and so will reject or make only minimal, \$300 payments on more claims than Grace had rejected in litigation.

3.2. Changes Over Time

Grace itself recognized that changes occurring at the time of its bankruptcy were increasing its risks and future liability (Peterson 2009, p. 5). Both the number of new claims and the amounts that Grace had to pay to resolve claims were increasing (Ibid, Section 4.3.3.1) and, as I discussed in the estimation report, both were likely to increase further (Ibid, Section 3.2).

Indeed, data from other asbestos defendants show continuing increases since 2001 in the values of asbestos claims and in the numbers of newly filed cancer claims. Although Grace has not paid an asbestos claim in eight years, has not received a new asbestos claim in eight years, these increases still apply to and magnify Grace's asbestos liability.

- Cancer claim filings have increased particularly for mesothelioma, the most costly claims (Ibid, Sections 6.2 and 6.2.3).
- Average amounts paid to claimants have increased (Ibid, 4.3.3.2 and 4.3.3.3).
- The size of verdicts awarded to asbestos plaintiffs have increased sharply (Ibid, Table 1, Section 3.2).

These data on the experience of other asbestos defendants since 2001 strongly imply that claims filings and all claims costs would have continued to increase sharply for Grace after its 2001 petition date. Our forecasts of future claims filings both for Grace and now for the Trust reflect this contemporaneous experience by other defendants and extend the increases in new cancer filings that Grace experienced before bankruptcy into the years after its petition date (Ibid, Section 6.2.3). Similarly, our analyses both of Grace's trends and recent settlement values show that Grace's costs for resolving asbestos claims would have continued to increase from 2001 through 2007, the date of my original estimation report (Ibid, Section 4.3.3). The Trust's TDP values reflect these current, increased costs.

Since I prepared my 2007 estimation report, asbestos litigation has continued to change. In particular, filings of nonmalignant claims have decreased sharply since 2003 reaching levels in the last two years that are lower than those we forecast for Grace in those years. Our current estimates of the number of nonmalignant claims that will be received by the Trust now reflect these continuing changes. We have reduced our forecast of nonmalignant claims below the level of my estimation report.

4. Trust Distribution Procedures

4.1. Standard TDP Provisions

The proposed Joint Plan of Reorganization establishes the Trust and TDP that the Trust will use to process, evaluate, liquidate and pay pending and future asbestos bodily injury claims. If this proposed plan is confirmed, the TDP would determine what claims are compensable and the values of those claims.

The Trust's TDP follows the standard form used for almost every asbestos trust created since 2002. To assure that funds will remain available to pay claimants, the TDP and bankruptcy plans in which they are embedded, together with Bankruptcy Code Section 524(g), provide a broad set of protections of the financial interests of the Trust, debtors, insurers and other parties who contribute assets to the Trust, which include:

- Trust claimants' recoveries are capped at the TDP *Maximum Value* or at most the *Extraordinary Claim Value*, caps that would not be imposed in the tort system. In asbestos tort litigation, multi-million dollar verdicts, even 8-figure verdicts, are no longer uncommon. Under the TDP, the Trust would have to pay no more than the pro-rata Payment Percent of \$1.44 million, and then only for the highest valued, extraordinary mesothelioma claim (i.e., a claimant with the greatest damages who was exposed to asbestos exclusively or almost exclusively (95%) by Grace alone). For most mesothelioma claims, those that are not *Extraordinary Claims*, the *Maximum Claim Value* is \$450,000 (TDP sections 7.7, 5.3(b)(3) and 5.4).
- The TDP has specific, stricter exposure requirements. To receive compensation, claimants must show "meaningful and credible" exposure to asbestos for which Grace has responsibility (Ibid, Section 5.7). To be paid more than \$300, claimants who do not have mesothelioma must also show at least five years of total asbestos exposures. To receive significant payment (more than about \$1,000), claimants who do not have mesothelioma must show *Significant Occupational Exposure*--i.e., regular and either direct or proximate exposures for at least five years (Ibid, Section 5.7(b)(2)).³ Grace could not impose such strict and specific requirements in its pre-petition litigation and settlements, as reflected in its settlement agreements and Grace's correspondence with Mendes and Mount, counsel for its insurers, notifying them of general settlements.
- The TDP eliminates any punitive damages risk.
- Medical criteria in the TDP for nonmalignant, lung and other cancer claims are more stringent, detailed and difficult to meet than Grace's historical settlement agreements for those diseases.
- The Trust can refuse medical evidence from any doctor or facility it determines to be unreliable. Grace could do this in its pre-petition tort litigation only through specific agreements; it had no means to enforce such restrictions globally.

3. Nonmalignant claimants who have at least 6 months Grace Exposure and five cumulative years any asbestos exposure but cannot show *Significant Occupational Exposure* might qualify to have their claims valued at \$2,500 (Ibid, Section 5.3(a)(3), Level II; Section 5.7(b)). Payments to such claimants will account for less than 7 percent of total Trust payments, Table 9, below. Claimants who can otherwise show "meaningful and credible" Grace Exposure may qualify for the \$300 payment under Level I (Ibid). Claimants who cannot meet these presumptive exposure requirements can offer other proof to show asbestos exposure for which Grace has legal responsibility through the TDP's *Individual Review* process (Ibid, Section 5.7(b)(1)). To receive payment for mesothelioma, which can be caused by even minimal asbestos exposures, claimants must show "meaningful and credible" Grace Exposure (Ibid, Section 5.3(a)(3), Level II; Section 5.7(b)).

Most significantly, the Trust, debtors, insurers and other parties can obtain protection against any further litigation in tort. Trust claimants can access tort litigation only against the Trust and only after completing a series of dispute resolution steps. While providing claimants with an opportunity to resolve their claims through jury trials with the Trust, the Grace (and other) TDP encourages claimants to resolve their claims through the TDP's administrative procedures in order to avoid the burdens, delay and heavy costs that litigation would bring. Related provisions of other, similar TDPs are effective. Among the millions of claims submitted to asbestos trusts under TDPs since 1995, I know of no claimant who has pursued a claim to trial.

The TDP establishes nine disease categories and exposure and medical rules that claimants must satisfy to be given value within each category: one category each for mesothelioma and other cancer claims; two lung cancer categories; four nonmalignant categories that differ by disease severity or causation criteria; and a ninth *Other Asbestos Disease* category that offers minimal payment for claimants who have an asbestos related disease but do not meet criteria for other categories.

The TDP sets values for each category (Table 1). All but one of the categories offer a fixed *Scheduled Value* that can be accepted as the settlement value by any claimant who meets the category's criteria. One lung cancer category, for claimants with less apparent asbestos causation, provides no scheduled value; rather, the Trust will review and place values on its cases individually.

Table 1: Disease Categories and Payment Parameters for TDP

Scheduled Disease	TDP Payment Parameters		
	Scheduled Value	Average Value	Maximum Value
Mesothelioma (Level VIII)	\$180,000	\$225,000	\$450,000
Lung Cancer 1 (Level VII)	\$42,000	\$45,000	\$95,000
Lung Cancer 2 (Level VI)	None	\$14,000	\$33,000
Other Cancer (Level V)	20,000	\$20,500	\$35,000
Severe Asbestosis (Level IV-A)	\$50,000	\$62,240	\$100,000
Severe Disabling Pleural Disease (Level IV-B)	\$50,000	\$62,240	\$100,000
Asbestosis/Pleural Disease (Level III)	\$7,500	\$8,500	\$15,000
Asbestosis/Pleural Disease (Level II)	\$2,500	\$3,000	\$5,000
Other Asbestos Disease-Cash Disc Pymt (Level I)	\$300	None	None

A claimant can choose instead to have an *Individual Review (IR)* of his/her claim that can result in a settlement value greater or less than the *Scheduled Value*. While the TDP does not fix settlement values for *Individual Reviews*, it limits such settlements in two ways. First, *Individual Review* settlements cannot exceed the *Maximum Value* established for each category, unless a claim meets the special requirements to be found as an *Extraordinary Claim*. Second, the Trust must limit *IR* settlement amounts so that the average settlements of all claims within a category, both those taking the *Scheduled Value* and those *Individually Reviewed*, do not exceed the *Average Value* established for the category.

The TDP structure has been developed to provide efficient, routine resolutions paying *Scheduled Values* to claims meeting the required criteria, while providing individual consideration for claims that do not fit neatly into the categories or that are more serious and valuable than most claims.

A claimant can obtain an *Extraordinary* settlement greater than the *Maximum Value* only by showing (a) that asbestos exposures were caused almost entirely by the debtor or (b) financial

damages that are exceptionally great. Most claimants will have been exposed by, and have claims against, multiple defendants. In the tort system such claimants would usually receive part of their compensation from Grace, but most compensation from multiple other defendants (i.e. Grace pays only its “several” share of total damages). In contrast claimants who were exposed only (or almost only) by Grace could look only to Grace for compensation. The TDP treats claimants who have little or no recourse to compensation by other companies, who can look only to Grace, as *Extraordinary* and provides them with greater compensation through the Trust. Under the TDP, a claim can also be treated as *Extraordinary* if the claimant has exceptionally large losses or special damages. This test is primarily the amount of a claimant’s financial loss. The seriousness of disease is usually not itself exceptional, since most asbestos-related cancers are fatal and an unfortunately great fraction involve great pain.

Specific values have been selected to promote core objectives of the TDP: efficient resolution of claims in amounts that are both fair across claimants and consistent with the legal values of claims. Offers and widespread election of fixed *Scheduled Values* promote fairness and efficiency. To encourage their selection *Scheduled Values* are typically set at the average value that the debtor would likely have paid in litigation to claimants within each category. In turn, fairness requires that claimants whose claims are very serious and more valuable than *Scheduled Values* have the opportunity to pursue higher values through *Individual Review*. The TDP provides this *IR* opportunity in most cases, while also assuring that *IR* elections do not unduly exhaust funds needed to compensate other deserving claimants.

Maximum Values and *Average Values* for each category are intended to achieve these fairness concerns. The *Maximum Value* is typically set in an amount approximately equal to the 95th percentile of amounts that the debtor would have paid to claimants in a category. This level permits appropriate settlement values up to the highest amount of most serious claims while capping the amounts that might have been obtained in litigation for the top few percent of claimants. The *Extraordinary Claims* provisions set an even higher cap for the rare claimant that can meet requirements: TDPs for other, existing trusts cap settlements of *Extraordinary Claims* at five times *Scheduled Value*.

4.2. Parameters of the Trust’s TDP

In the course of my work as an expert and consultant to the Asbestos Claimants Committee, I helped the ACC adapt these general TDP features to the particularities of claims against Grace.

As with other trusts, the TDP’s *Scheduled*, *Maximum* and *Average Values* are based on settlement levels expected for Grace had it continued in asbestos litigation. My expert report in the estimation case presented extensive analysis and discussion of amounts that Grace would likely have paid in continuing litigation after March 2001 (Section 4.3.3) and my proposals of values for the TDP were based on that work.

In order to represent the current values of claims against Grace, TDP values had to be set at levels greater than what Grace paid as settlements in the past. Five different analyses presented in my expert report in the estimation case using three different methods all demonstrated that Grace would have paid far more on average on and after March 2001 to settle asbestos claims than it had paid in pre-petition settlements (Peterson 2009, Tables 13-15). Grace agreed also that its future settlement values would increase above pre-petition levels (Ibid, p. 5).

I used results of these analyses to establish TDP values for the Trust. My expert report showed that all models of the current Grace settlement values were closely similar to amounts actually paid in 2001 by USG, another prominent asbestos defendant, before it entered bankruptcy. USG filed for bankruptcy protection 2001 after Grace and now has a confirmed reorganization plan that includes TDP values accepted by the parties and approved by the Court. I looked to TDP values

for the USG Asbestos Trust as a basis for TDP values.

I provided the Grace Asbestos Claimants Committee with alternative sets of TDP values that were based on and varied modestly from the approved values in the USG TDP. The Grace Asbestos claimants and other plan proponents accepted TDP values close to those of the USG TDP, increasing mesothelioma and other cancer *Scheduled Values* slightly and decreasing values for lung cancer and the lesser nonmalignant categories.

4.3. Libby and Other Extraordinary Claims

In developing the TDP, parties paid special attention to asbestos claims arising in and around Libby Montana, where Grace's mining and milling operations exposed both workers and town residents.

Many Libby claimants assert that they were exposed almost exclusively by Grace and its predecessors. Also many Libby claimants with nonmalignant diseases assert that their medical conditions are more serious than pleural disease and/or asbestosis suffered by claimants exposed elsewhere. Although Libby claimants and their representatives assert that fatal nonmalignant diseases and (almost) exclusive exposures to Grace asbestos occur especially frequently among Libby claimants, neither of these asserted conditions is unique to Libby claimants.

For decades, some heavily exposed workers across the country have died from serious asbestosis or pleural thickening. In recognition of these particularly serious claims, previous TDPs have provided as a standard provision high compensation for exceptionally serious or fatal nonmalignant asbestos diseases through the TDPs' *Serious Asbestosis* category. About 1 percent of nonmalignant claimants receive payment through this category (November 2007 Manville Trust data). To reassure that similar high compensation will be provided to claimants who die from either pleural disease or from asbestosis or who suffer from similarly exceptional cases of either disease, the TDP includes both a *Serious Asbestosis* and *Serious Pleural Disease* category. While this TDP change--the addition of a specific *Serious Pleural Disease* category--addresses the particular issues raised by Libby claimants, the change applies to all claimants who might qualify for the category, whether the claimants are from Libby, one of the other sites across the country where Libby vermiculite was processed, or were otherwise exposed to asbestos by Grace. The change supports a fundamental TDP objective of treating comparable claimants comparably.

Similarly, some Grace claimants, both from Libby and elsewhere in the country, have been exposed to asbestos almost exclusively by Grace rather than by other companies. These claimants must look almost entirely to Grace for compensation. Again, the problem is unique neither to Libby claimants nor to Grace claimants. Throughout the country many victims of asbestos disease were exposed primarily or exclusively by the actions or products of a single company that has since entered bankruptcy. Like many Libby claimants, all of these claimants are exceptionally dependent for compensation on a single Trust created in the bankruptcy proceedings of the company. To address this problem, TDPs all provide opportunities for greater compensation for extraordinary claims where the claimants were exposed primarily or exclusively by the company creating the trust. In previous trusts, extraordinary claimants can receive compensation up to 5 times the scheduled value for the category in which they qualify.

The Grace TDP was adapted to address the unusual circumstances of claimants from Libby or who worked elsewhere in a Grace manufacturing facility. First, the TDP explicitly recognizes that claims will be treated as *Extraordinary* if either the claimant was exposed in a Grace manufacturing facility or at least 75 percent of the claimant's exposure was due to Grace. Second, the TDP provides increased compensation, up to 8 times the *Scheduled Value*, if at least 95 percent of the claimant's exposure is due to Grace. Other *Extraordinary* claimants could receive up to 5 times the *Scheduled Value*, as in other pre-existing asbestos trusts. Again to

provide equivalent treatment among claimants, these *Extraordinary Claims* provisions apply to all eligible claimants, those exposed in Libby as well as in other sites where Grace vermiculite was processed.

Under Bankruptcy Code Section 524(g), the proposed reorganization plan and the TDP must treat substantially similar asbestos claimants equivalently. The TDP rules, values and structure that will be used by the Trust are national and apply to all claimants. But recognizing that the facts and values of claims differ, the TDP provides means for claimants to obtain differing values that are appropriate for the circumstances of their claims, by providing nine categories (including four categories of nonmalignant disease), by providing *Individual Review Scheduled* and *Maximum Values*, and by separating and providing exceptionally high values for *Extraordinary Claims*.

Like all asbestos defendants, historical resolution values differ among jurisdictions, some high, some low. Libby plaintiffs received high settlements and verdicts compared to most other jurisdictions. Among other asbestos defendants, resolutions in jurisdictions such as New York or Texas or the San Francisco area are especially high, but TDPs in those cases do not place specific TDP values for claims from those jurisdictions that are higher than the values of claims from other jurisdictions. Rather, the TDPs provide opportunities to obtain high values from the Trust through the same means available here for Libby claimants.

The relatively high historic values paid by Grace to Libby claimants seem to reflect matters that are addressed in the TDP. There was a higher frequency of Libby claims with exclusive or almost-exclusive asbestos exposures from Grace, claims that got higher resolutions because Grace paid almost all damages, not some partial, several share. Libby plaintiffs often claim much more serious nonmalignant injuries than we have seen for the nation as a whole. The higher values for exclusive exposures or more serious nonmalignant injuries will get greater compensation under the TDP. A claimant can get even greater compensation if both apply to his or her claim.

Libby settlement values were also greater historically because Libby claims were historically resolved differently from claims in other jurisdictions. Both because there are few Libby claims, and also because of the particular facts of those claims, most Libby claims were resolved individually or as part of small groups, in contrast to claims elsewhere that were resolved mostly in large groups (Peterson 2009, Table 5). Grace paid significantly more to claims resolved individually or in small groups than those in mass settlements (Peterson 2009, Table 6). Again, the TDP provides for this difference. Most Trust claimants will use the expedited claim process to obtain scheduled values, a process akin to large group settlements. Libby claimants can seek higher values from the Trust through the *Individual Review* process.

We cannot know how each of these matters affected the size of historic resolutions for Libby claims. Our only other index of the relative value of claims is to compare jury verdicts from Libby and elsewhere. Table 2 shows jury verdicts for nonmalignant Grace claims since 1997. Verdicts are actually higher outside of Libby than among Libby claimants. The mean Libby verdict was \$416,000. The mean non-Libby verdict was \$1,027,995 (excluding cases under appeal) and \$5,188,950 (including cases under appeal).

Table 2: Libby and Non-Libby Nonmalignant Verdicts Since 1997

Location	Matter#	GraceID	Dispose Year	Verdict Amount	Status
Libby	9510340	224745	1998	\$585,000	Closed
Libby	9609306	288247	1998	\$250,000	Closed
Libby	9809685	368069	1999	\$413,000	Closed
Other	9402853	147423	1999	\$100,000	Closed
Other	9407292	161998	1999	\$648,000	Closed
Other	200106332	507771	1998	\$2,335,986	Closed
Other	9501281	182491	2000	\$9,855,000	Under Appeal
Other	9501281	184898	2000	\$8,255,000	Under Appeal
Other	9501281	184994	2000	\$8,107,618	Under Appeal
Other	9501281	279129	2000	\$3,955,000	Under Appeal
Other	9501281	279146	2000	\$8,255,000	Under Appeal

5. Forecasting the Trust's Asbestos Liability

The Trust will receive asbestos bodily injury claims over the next forty years. The aggregate value of those claims can be reasonably forecast, although, as forecasts, they cannot be precisely determined in advance.

5.1. Number of Trust Claims

The Trust is the conduit for paying all asbestos bodily injury claims that are either still pending or will be made in the future against Grace. All claims that would have been brought against Grace had there been no bankruptcy will now be filed with the Trust.

I previously forecast the numbers of claims against Grace for each asbestos-related disease as part of my estimation report for this case.⁴ Now this becomes the basis for the forecast of the number of claims that will be filed with the Trust.

My estimation report provides details of these forecasts, which use standard estimation methods based on Grace's asbestos claims database, data on claims filings against other asbestos defendants including filing levels for six years following Grace's bankruptcy petition, and epidemiological forecasts of asbestos-related cancer incidence that have proved to be highly accurate (Peterson 2009, Sections 4 and 6).

Table 3 shows counts both of pending unresolved and liquidated (but unpaid) claims, the forecast of future Trust claim filings for each asbestos disease, and totals. Note that values of pending liquidated claims are assumed to be previously agreed upon settlement values for each claim as representing in Grace's claims database and are not determined by the TDP.

Table 3: Forecast Trust Claim Filings, by Disease

Claim Status	Number of Claims				Total
	Meso	Lung	Othc	Nonm	
Pending Unresolved	2,885	5,346	1,325	93,365	102,921
Future	29,268	26,086	8,765	520,183	584,302
Subtotal	32,153	31,432	10,090	613,548	687,223
Liquidated	139	466	215	17,700	18,520
Grand Total	32,292	31,898	10,305	631,248	705,743

Sources: Tables 21 and 35, Peterson 2009.

Table 3's forecasts reflect the data and our best understanding of filing trends through 2006. In 2007 we had assumed that nonmalignant claim filings would follow in parallel the slow long-term decrease in the incidence of asbestos-related cancers forecast by Nicholson and his colleagues. Now in 2009 we have the advantage of two more years of experience, which generally confirms our 2007 forecast trends for cancer, but which suggests that the decreasing filing trends for nonmalignant claims observed through 2006 will be a more permanent and significant event in asbestos litigation. In response to this further information, we now assume that decreases in future nonmalignant filings will be sharper than the decreases we had forecast in 2007.

4. W. R. Grace Projected Liabilities for Asbestos Personal Injury Claims As of April 2001, by Mark A. Peterson of Legal Analysis Systems dated June 2007 as revised January 2009.

We look to the filing experiences of the Manville Trust, where the “nonmalignant multiplier” (the annual ratio of nonmalignant filings in a year to the Nicholson et. al. forecast of all asbestos-related cancer incidence for the year) in 2003-2006 fell to 50.7 percent of its rate during 2000. We now assume that Grace would have seen a similar decrease, with gradual decreases in the nonmalignant multiplier from its 2000-2001 level until such filings are only 50.7 percent of that value by 2005. We assume that in 2006 and all further years, the multiplier will remain at 50.7 percent of the 2000-2001 level.

2001	2002	2003	2004	2005	2006+
100.0%	87.7%	75.4%	63.0%	50.7%	50.7%

This nonmalignant adjustment effectively cuts the nonmalignant claims forecast in half. Table 4 shows the forecast of future Trust claim filings after applying this adjustment.

Table 4: Forecast Trust Claim Filings, After Nonmalignant Adjustment

Claim Status	Number of Claims				Total
	Meso	Lung	Othc	Nonm	
Pending Unresolved	2,885	5,346	1,325	93,365	102,921
Future	29,268	26,086	8,765	263,733	327,852
Subtotal	32,153	31,432	10,090	357,098	430,773
Liquidated	139	466	215	17,700	18,520
Grand Total	32,292	31,898	10,305	374,798	449,293

Sources: Tables 21 and 35, Peterson 2009.

5.2. Number of Compensable Trust Claims

Among the 430,773 forecast unliquidated claims (Table 4, third row total), the Trust will reject those that do not have an asbestos-related disease or cannot demonstrate exposure to asbestos caused by Grace or otherwise fail to meet TDP or legal requirements. Our forecasts use two analytic steps to eliminate such non-compensable claims.

First, we assume that if Grace would not have paid a claim, i.e. those without Grace exposures and/or asbestos related disease, then neither would the Trust. The analyses of my estimation report assumed that had Grace continued in litigation, it would have successfully dismissed many more claims than it had pre-petition. I assume that the Trust would also reject more claims than Grace had pre-petition and so apply to Trust claims the same relatively high rejection rates used in my estimation report.

Table 5 shows alternative payment percentages that I used in my estimation report, the converse of rejection rates. For example, historically, among all mesothelioma claims resolved claims by Grace through any means, 92.1% were resolved with payment or, conversely, a 7.9% rejection rate ($100.0\% - 92.1\% = 7.9\%$). Our forecasts both for Grace in litigation and now for the Trust use significantly lower alternative payment rates, *Reduced* or *Lowest* from Table 5. Among cancer claims I expect that actual Trust claim acceptance rates will be closer to Reduced than the Lowest rates. For nonmalignant claims I assume that the Trust will accept only 57.8%, rejecting over 40 percent of such claims.

Table 5: Payment Rates for Trust

Payment Rate Definition	Payment Rates			
	Meso	Lung	Othc	Nonm
Historic	92.1%	95.3%	96.7%	96.3%
Reduced	78.3	81.0	82.2	57.8
Lowest	64.5	66.7	67.7	57.8

Source: Table 33, Peterson 2009.

Our second step distributes our forecast for each of the four asbestos disease categories into the Trust TDP's nine disease categories. Grace's historical claims database supports forecasts only for the four types of asbestos diseases. Neither Grace's nor any other defendant's database provides the detailed information needed to make separate forecasts of claims satisfying the criteria for each of nine TDP categories. Fortunately, the Manville Trust (and increasingly other more recent trusts) have been developing experience and data showing how claims in each of the four diseases sort themselves into the more numerous disease categories like those of the Grace TDP. Table 6 shows the transition matrix derived from Manville data: how claims for each of the four types of asbestos disease distribute into the eight Manville TDP categories.

Table 6: Mapping Projection Disease to Manville TDP Disease Categories

Projection Disease	TDP Disease								Total
	Meso	Lung1	Lung2	Othc	SevA	ImpA	NonM	CDP	
Meso	1.000								1.000
Lung		0.543	0.357					0.100	1.000
Othc				0.739				0.261	1.000
Nonm					0.010	0.173	0.765	0.052	1.000

Source: November 2007 Manville Trust data.

Because the disease categories and criteria are highly similar among most TDPs for asbestos trusts established over the past seven years, it is appropriate and reasonable to assume that Trust claims will distribute similarly to the Manville transition matrix.⁵ We use the Manville transition matrix to allocate the forecast Grace claims into TDP categories, but do not distinguish between the two categories of severe asbestos disease.

After applying payment rates and the Manville Transition Matrix, we derive our forecast of the number of Trust claims that will be accepted and compensated in each of the TDP categories. These results are shown in Table 7.

5. As one difference, the Grace TDP has two separate categories for severe nonmalignant claims, one each for severe asbestosis and severe pleural disease claims. The Manville TDP has only one category that would apply to both types of severe nonmalignant claims. This difference has little significance. The Manville Trust will compensate both severe asbestosis or severe pleural claims within its one category. The Grace TDP simply splits into two categories claims that Manville will pay in one. Because such severe nonmalignant cases are rare, the offer of one or two categories would not have a material effect on overall Trust liability.

Table 7: Forecast of Claims Compensated by the Trust

Disease	Payment Rates		
	Historic	Reduced	Lowest
Meso	29,612	25,175	20,738
Lung1	16,268	13,827	11,386
Lung2	10,696	9,091	7,486
Othc	7,211	6,130	5,049
SevAB	3,723	2,234	2,234
ImpA	64,402	38,654	38,654
NonM	284,781	170,928	170,928
CDP	24,901	16,330	15,499
Subtotal	441,594	282,370	271,974
Liquidated	18,520	18,520	18,520
Grand Total	460,114	300,890	290,495

5.3. Values for Each TDP Category

We use the TDP's *Average Value* for each TDP category to value claims in the category. Like all similar TDPs, the TDP instructs trustees to liquidate claims in each category in amounts that will approximate the *Average Value* for the category. Experience shows that existing trusts are able to comply with this instruction. The TDP's *Average Values* for each TDP category, our forecast of the values for claims in each category, are shown in Table 1 above.

5.4. Forecasts of Trust Liability for Asbestos Bodily Injury Claims

We multiply the number of compensable claims in each TDP category (Table 7) times the *Average Values* for that category in order to derive the Trust's overall liability.

We carry out this calculation separately for claims arriving in each year and make several time value adjustments. First, we assume that all pre-petition claims will be paid during the Trust's first year; that claims accruing during the bankruptcy period will be paid in the Trust's second and third years; that claims filed in the first four years will experience two years' delay; and that delays after that will be only one year. These payment year assumptions determine the amount of inflation and sequencing adjustments added to a claim and also the term or years for present valuation. Second, we apply the TDP's rules for the timing of inflation and sequencing adjustments, with inflation at 2.5 percent and sequencing adjustments at 5 percent. Third, we assume a 5.11 percent discount rate for present valuation.⁶

Table 8 shows our forecast of the total nominal value of the Trust's liability for asbestos bodily injury claims (with inflation and sequencing adjustments but no present valuation).

6. The inflation and discount rate assumptions are the same as those of my estimation report, to facilitate comparison. Both are long term rates, which have will be affected only modestly by current economic conditions. The discount rate estimates the long-term, post-tax rate of return that the Trust might earn on its assets. The difference between the discount rate and the inflation rate represents the Trust's real earning rate, how much it would earn on assets excluding the effects of monetary inflation.

Table 8: Forecast Liability of Claims Compensated by the Trust

Disease	Payment Rates		
	Historic	Reduced	Lowest
Meso	\$8,441	\$7,176	\$5,911
Lung1	925	787	648
Lung2	189	161	132
Othc	186	158	130
SevAB	297	178	178
ImpA	702	421	421
NonM	1,095	657	657
CDP	10	6	6
Subtotal	\$11,844	\$9,544	\$8,084
Liquidated	\$84	\$84	\$84
Grand Total	\$11,928	\$9,628	\$8,168

Notes: Millions of dollars of the year when paid. Indemnity is inflation adjusted at 2.5% per year.

Table 9 shows our forecast of the total present value of the Trust's liability for asbestos bodily injury claims (with inflation, sequencing and discount rate adjustments).

Table 9: Forecast NPV of Claims Compensated by the Trust

Disease	Payment Rates		
	Historic	Reduced	Lowest
Meso	\$6,342	\$5,392	\$4,442
Lung1	763	648	534
Lung2	156	133	109
Othc	150	128	105
SevAB	249	149	149
ImpA	588	353	353
NonM	918	551	551
CDP	8	5	5
Subtotal	\$9,175	\$7,360	\$6,249
Liquidated	\$84	\$84	\$84
Grand Total	\$9,259	\$7,444	\$6,333

Notes: Millions of 2010 dollars. Indemnity is inflation adjusted at 2.5% per year. Discount rate is 5.11%.

5.5. Comparison of Trust Liability to Hypothetical Tort Liability

The proposed reorganization plan and TDP were developed to mitigate the high cost and lengthy delays of tort litigation while providing fair and even-handed compensation of claims at amounts consistent with the tort values of those claims.

Litigation is simply not an option for the Trust. If it were to remain in litigation, the Trust could

not comply with the requirements of Bankruptcy Code Section 524(g), meaning that neither the debtors nor its insurers would have the injunctive protection of that section.

A litigation process would be enormously expensive, fatal to the objectives of the Trust. RAND's Institute for Civil Justice finds that in litigation asbestos defendants and their insurers spend about two dollars for every dollar paid in compensation. If it were in litigation, the Trust would become a vehicle for paying lawyers, not claimants. In contrast, based on the experience of current asbestos trusts, the Trust's expenses under the TDP will be about 5 percent of compensation paid to claimants.

The experience of the Manville Trust shows that in fact asbestos trusts cannot succeed in tort litigation. The original Manville reorganization plan kept the trust in litigation, disastrously. The trust was insolvent immediately, as it quickly acknowledged. Both plaintiffs and asbestos co-defendants sued and brought the trust into hundreds of trials. The Trust's litigation expenses quickly approached \$50 million per year (in 1989 dollars), consuming trust corpus. The trust became unable to pay claims. Less than two years after the effective date, Judge Jack B. Weinstein stayed all trust payments setting in motion the process that led to the trust's restructuring and became a template for all later trusts.

But continued litigation is not necessary. Under the TDP, the Trust will operate with rules that will let it be more effective than Grace was in litigation in separating compensable from non-compensable claims. Its TDP requirements are more specific, more detailed and stricter than Grace's had been in litigation. And the Trust's liability under the TDP will most likely be less than, or at worst closely approximate, what its total liability would be were it (impossibly) to return to litigation.

To address this issue quantitatively, we compared our forecast of the Trust's liability under the TDP with forecasts that used instead the payment rates and average values of our tort forecast for Grace (Peterson 2009). To make the comparison we used the litigation claim values from my expert report, inflating them to 2010, the assumed effective year of the proposed reorganization plan. As in our current forecast for liability under the Trust's TDP, we used the payment rates from my estimation report. But for the present litigation forecast, we did not shuffle these claims into TDP categories, categories which would not operate in a litigation process. As I discussed above, we use the same numbers of pending and future claims for both TDP and the tort litigation forecasts. We assume (for purposes of this analytic comparison only) that claims would resolve at the same time under either litigation or the TDP process. We also use the same inflation and discount rates for both forecasts.

Table 10 shows the results of this comparison in net present values of forecast liability. The effect varies according to which of the five litigation value models we use. Comparing TDP liability to litigation liability based on USG's historic values, the TDP saves about \$1 billion in liability. Note that the USG model was our preferred value model in our work in estimating Grace's tort-based liability and the basis for deriving the TDP values. Liability under the TDP is about \$700 million less than liability in litigation based on values derived from multiple regression, our "Long-term Trend" value model. Liability under the TDP is similar to, but mostly less than, liability from litigation for our other three litigation value models.

In short, the Trust's total liability under the TDP is likely less than, but at worst about the same as, what the Trust's liability would be were it to resolve claims within continuing tort litigation. Were the Trust forced back into litigation, its liabilities would most likely increase, its expenses would increase enormously, it could not provide future claimants with significantly equivalent treatment, the Trust, debtors, insurers and others would lose protection under Bankruptcy Code Section 524(g)--the Trust would fail to meet either the objectives of fair and equivalent compensation of comparable claimants or the requirements and purposes of Section 524(g).

Table 10: NPV of Total Liability

Setting	Dollars	Payment Rates		
		Historic	Reduced	Lowest
Tort	Long-term trend	\$10,009	\$8,123	\$6,869
Tort	Short-term trend	9,205	7,374	6,280
Tort	Quigley	9,470	7,506	6,428
Tort	T&N	9,611	7,628	6,528
Tort	USG	10,694	8,549	7,286
Trust	TDP Avgs	\$9,259	\$7,444	\$6,333

Notes: Millions of 2010 dollars.

6. Rule 26 Disclosures and Signature

QUALIFICATIONS. My qualifications to perform this analysis and provide expert testimony are set forth in my C.V., a copy of which is attached as Exhibit 1.

MATERIALS CONSIDERED. In reaching the opinions and conclusions set forth in this Report, I have relied upon my report for the Estimation Hearing in this case, which is attached as Exhibit 2. I have also relied upon a current draft TDP.

COMPENSATION. My compensation for services rendered in this case is set forth in the fee applications Legal Analysis Systems files on a regular basis with the Bankruptcy Court. At present, my hourly rate is \$800.

I reserve the right to modify this report as new information becomes available between now and the time of trial. I anticipate that I will review the expert witness reports of opposing expert(s) and offer my opinions about their analyses and conclusions in rebuttal testimony.

/s/ Mark A. Peterson

Mark A. Peterson, J.D., Ph.D.
LEGAL ANALYSIS SYSTEMS

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EDUCATION

B.A. (summa cum laude), 1966, University of Minnesota
J.D. (cum laude), 1969, Harvard Law School
M.A. Social Psychology, 1973, UCLA
Ph.D. Social Psychology, 1976, UCLA

ACADEMIC EXPERIENCE

1976-2002--Senior Research Scientist, RAND, Santa Monica, California. Policy analysis and research on U.S. civil and criminal justice systems.

- Founding Member of RAND's Institute for Civil Justice (ICJ), 1980
 - ICJ studies U.S. civil justice system using “an interdisciplinary empirical approach to public policy issues and rigorous standards of quality, objectivity and independence” (www.rand.org/icj).
 - Principal Investigator for ICJ studies in following areas
 - **Litigation Process.** Originated a new research area of systematic, empirical analysis of jury verdicts. Collected massive data on all civil jury verdicts reported in California and Cook County, Illinois, between 1959-1985 and then extending data collection to other states. Analyzed how juries' verdicts differed and changed over time by type of claims, severity and type of injury, economic losses, characteristics of plaintiffs and defendants, venue.
 - **Settlement Process.** Combined social science and computer science (artificial intelligence) to study how parties settle product liability claims. Developed a computer expert system to simulate lawyers' settlement decisions in product liability cases as revealed through extensive Socratic interviews of experienced trial lawyers and insurance claims persons.
 - **Settlement Process in Asbestos Claims.** Used social science and computer science methods to develop an expert system to simulate lawyers' settlement decisions in asbestos cases as revealed through extensive Socratic interviews of experienced plaintiffs and defense lawyers and insurance claims persons. Research was for and used by the U.S. District Court for the Northern District of Ohio and the Manville Personal Injury Settlement Trust.
 - **Mass Torts.** Case studies of asbestos and other mass torts based on interviews with participants, quantitative analyses of available data and research of existing records and articles. Looked across various mass torts to derived general empirical and theoretical observations about origins, characteristics, and methods for resolving mass torts.

- **Punitive Damages.** Analyzed years of jury verdict data to described frequency, size, and types of cases in which punitive damages are awarded; trends over time; effects of post-trial actions; possible effects of legal changes. In collaboration with Special Committee on Punitive Damages of the Litigation Section of the American Bar Association.
- **Workers Compensation.** Large scale quantitative and descriptive evaluation of California's workers compensation system with suggestions for change of that system. Work was for the California Commission on Health and Safety and Workers Compensation.
- **Economic Effects of Product Liability Law.** Case studies and statistical analyses of selected industries.
- Criminal Justice Program
 - Principal Investigator for studies in following areas
 - **RAND Criminal Offender Survey.** Survey of inmates in five California prisons. Estimated crime parameters; examined incapacitation effects; examined relationships between crime and inmate characteristics.
 - **RAND Criminal Offender Survey II.** Examined pre-incarceration crimes for sample of 2500 jail and prison inmates in three states.
 - **Effects of California Determinate Sentencing.**
- Author of 46 RAND publications
- Teaching
 - **Law School, University of California, Los Angeles.** Visiting Professor. Advanced Torts: Mass Torts; Law and Social Sciences Seminar, Fall 1989.
 - **RAND Graduate School.** Policy Analysis of Legal Issues, Fall 1984.
 - **Department of Psychology, University of California, Los Angeles.** Psychological Analyses of Legal Issues, Spring 1973, Spring 1975.
 - **Law School, University of California, Los Angeles.** Trial Tactics Spring 1974, Fall 1974, Spring 1975.

PROFESSIONAL EXPERIENCE

1984-Present--Legal Analysis Systems, Inc. Special master, expert consultant in complex litigation.

- Special Master and Expert for Courts in Asbestos Litigation
 - Special Advisor to **Judge Jack B. Weinstein**, U.S. District Courts for Eastern and Southern Districts of New York and **Judge Burton Lifland**, U.S. Bankruptcy Court for Southern District of New York, to restructure the insolvent Manville Personal Injury Settlement Trust. Worked as Courts' special master and technical consultant in the Findley v. Falise, mandatory, limited fund class action. 1990-1995.
 - Special Advisor to the Manville Trust: appointed by the Courts as part of the settlement of the Findley class action to direct dispute resolution and provide technical consultation to the Courts, the Trust and each of the Trust's bodily injury claimants,

co-defendants, distributors and future claimants beneficiary groups. 1995-2007.

- Became a trustee of the Manville Personal Injury Settlement Trust in July 2007.
- Neutral expert for **Judge Robert Parker**, U.S. District Court, Eastern District of Texas. Worked as the Court's expert in Jenkins v Raymark class action to collecting and evaluate empirical data about asbestos injury claims. 1984-1985.
- Neutral expert for **Judge Thomas Lambros**, U.S. District Court, Northern District of Ohio. Worked as expert in Ohio Asbestos Litigation Plan (1) to develop an expert system for valuing asbestos claims based on interviews with plaintiffs and defense lawyers and insurance claims persons, (2) collected and evaluated data about pending and resolved asbestos injury claims to identify resolved claims that could be used as precedents for settling pending claims. 1983-1988. Expert system was done as research within RAND's ICJ.
- Expert for Courts in Other Mass Tort Litigation
 - Neutral expert for **Judge Robert Merhige**, U.S. District Court for Eastern District of Virginia. Worked as expert in Bankruptcy of A. H. Robins Company, Inc. to develop "expert system" of medical and claims issues for evaluating Dalkon Shield claims, to oversee development of claims data bases and to conduct statistical analyses to evaluate Dalkon Shield claims.
- U. S. Senate Committee on Judiciary
 - Testified on asbestos liabilities and proposed legislation on three occasions. June 2003, November 2005, February 2006.
- Trustee of Asbestos Trusts and Director of Asbestos Claims Facilities
 - **Trustee of Manville Personal Injury Settlement Trust.** 2007-present.
 - **Trustee of Fuller-Austin Settlement Trust.** 1998-present.
 - **Director of Claims Resolution Management Corporation**, which administers claims for Manville, H. K. Porter and other trusts. 2007-present.
 - **Director of Trust Services Inc.**, which administers claims for National Gypsum, Fuller-Austin and 6 other trusts. 1998-present.
- Expert to 20 Asbestos Trusts Regarding Claims, Procedures and Liability Estimation
 - Manville Trust, 1987-1988.
 - UNR Asbestos Disease Claimants Trust, 1992-2002.
 - National Gypsum Trust, 1994-present.
 - Fibreboard Interim Trust, 1994-1997
 - Eagle-Picher Asbestos Trust, 1995-present.
 - Celotex and Carey Canada Trust (expert for Representative of Future Claimants), 1996-2002.
 - H. K. Porter Trust, 1996-present.
 - Fuller-Austin Settlement Trust, 1998-present.

- Keene Asbestos Claimants Trust, 2000-2002.
- Raytech Trust, 2000-2004
- E. J. Bartels Trust, 2000-2005
- Wallace and Gale Trust, 2002-present.
- Shook and Fletcher Trust, 2004-present
- Western Asbestos Trust (MacArthur), 2005-present
- Porter Hayden Trust, 2006-present
- Combustion Engineering Trust, 2006-present
- C. E. Thurston Trust, 2007-present
- J. T. Thorpe Trust, 2007-present
- ARTRA Trust, 2007-present
- API Trust (expert for Representative of Future Claimants), 2008-present
- Expert on Asbestos Claims and Liability Forecasts in 35 Bankruptcy Cases
 - Testified about asbestos forecasts 22 times in 17 bankruptcy cases
 - **National Gypsum Corporation.** Testified in estimation hearing for Legal Representative for Future Claimants and Claimants Committee; testified twice after confirmation for National Gypsum Trust.
 - **Asbestos Claims Management Company (ACMC).** Testified for National Gypsum Trust.
 - **Hillsborough Holdings Corporation.** Testified during veil-piercing hearing for defendant asbestos claimants.
 - **Eagle-Picher Industries, Inc.** Testified about estimation methods during hearing on bar date, for Claimants Committee; testified in estimation hearing for Claimants Committee.
 - **Celotex and Carey Canada.** Testified in confirmation hearing for Claimants Committee.
 - **Raytech Corporation.** Testified about estimation methods during hearing on bar date, for Claimants Committee.
 - **Raymark Corporation.** Testified for Claimants Committee in hearing on dismissal of bankruptcy.
 - **Wallace and Gale Corporation.** Testified in confirmation hearing for Claimants Committee.
 - **The Babcock and Wilcox Company et. al.** Testified during veil-piercing hearing for defendant asbestos claimants; testified in estimation hearing for Claimants Committee.
 - **Owens Corning and Fibreboard.** Testified in estimation hearing for Claimants Committee.
 - **Armstrong World Industries.** Testified twice in separate estimation hearings for

Claimants Committee.

- **Federal Mogul.** Testified in hearing to estimate liabilities of Turner & Newall for Claimants Committee.
- **API Inc.** Testified in confirmation hearing for Legal Representative for Future Claimants.
- **C. E. Thurston, Inc.** Testified in confirmation hearing for Debtor.
- **Plibrico.** Testified in estimation hearing for Unofficial Committee of Claimants.
- **Western Asbestos.** Testified in confirmation hearing for Debtor and Claimants Committee.
- **J. T. Thorpe.** Testified in confirmation hearing for Debtor and Claimants Committee.

– Expert in 18 other bankruptcy Cases

- **U. S. Gypsum (USG)**
- **H. K. Porter Company, Inc.**
- **Keene Corporation**
- **E. J. Bartels, Inc.**
- **Fuller-Austin Insulation Company**
- **Pittsburgh Corning Corporation**
- **G-I (GAF)**
- **Burns and Roe**
- **W. R. Grace**
- **Porter Hayden**
- **Shook and Fletcher**
- **Plant**
- **Thorpe Insulation**
- **ARTRA**
- **ASARCO**
- **ACandS**
- **Congoleum**
- **Flintkote**

• Expert on Asbestos Claims and Liability Forecasts in Insurance Matters

– Testified About Asbestos Forecasts in Insurance Litigation

- **Ahearn v. Fibreboard (class action).** Testified about asbestos liabilities of Fibreboard for CNA (Continental) and Chubb Insurance Companies. 1994.
- **Fuller-Austin Insulation Company v. CNA.** Testified in court trial and in jury trial about Fuller-Austin's asbestos liabilities for Fuller-Austin Insulation Company and

Fuller-Austin Trust. 2000 and 2001.

- **Western Mac Arthur v. USF&G.** Testified about asbestos liabilities for Western Mac Arthur. 2004
- Expert for Insurance Companies
 - **CNA (Continental).** Expert for CNA Insurance on liabilities of an asbestos defendant insured by Continental. 1999-2002.
 - **Zurich (Bermuda).** Expert for Zurich Insurance on liabilities of an asbestos defendant insured by Zurich. 1999-2002.
 - **KWELM.** Expert for London Insurance Company on methods for estimating asbestos liabilities.
- Expert for 9 asbestos defendants and other businesses regarding asbestos liabilities.
- Expert in Other Mass Torts
 - **MGM Grand Hotel Fire Insurance Litigation.** Expert for insurance companies and insurance broker Frank B. Hall, Inc. to evaluate wrongful death and personal injury claims arising from MGM Grand Hotel fire. 1982.
 - **In re Bankruptcy of Dow Corning Corporation.** Expert for Tort Claimants' Committee regarding estimation and treatment of breast implant and other medical implant claimants. 1998-99.
- Private Law practice in Los Angeles, California. 1969-1974.

OTHER PROFESSIONAL ACTIVITIES

- California Legislature, Joint Rules Committee, Sacramento--Consultant. Supervised three research projects on prisons, sentencing, and prison alternatives.
- California Board of Prison Terms, Sacramento--Consultant. Developed computer system for reviewing disparity in felony sentencing.

PROFESSIONAL ORGANIZATIONS

California Bar Association

PUBLICATIONS

- "Compensating Permanent Workplace Injuries: A Study of the California System," RAND.1998. Coauthored.
- "Findings and Recommendations of California's Permanent Partial Disability System," RAND, 1998. Coauthored.
- "Understanding Mass Personal Injury Litigation: A Socio-Legal Analysis," Brooklyn Law Review, Vol. 59, Fall 1993 (coauthored).
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January 2008

W. R. Grace

Projected Liabilities for Asbestos Personal Injury Claims

As of April 2001

Mark A. Peterson

Legal Analysis Systems

June 2007 (Revised January 2009)

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Executive Summary

Purpose and Approach

This report summarizes results of analyses to estimate the liability of W. R. Grace (“Grace”) for asbestos personal injury claims that had been filed and were unresolved (“pending claims”) and claims that would be filed in the future (“future claims”) as of the date of Grace’s bankruptcy petition, April 2, 2001.

Source of Grace’s Liability

Grace is an unusual asbestos defendant. Grace was both a miner and manufacturer with a broad array of over 200 asbestos-containing products that were sold directly to the public and used in many different industries. From 1923 the Zonolite Company, which Grace acquired in 1963, mined, processed and sold vermiculite, an ore that was contaminated with tremolite, a particularly dangerous amphibole form of asbestos. Vermiculite dust is primarily responsible for the widely publicized health problems in Libby Montana. Grace also used chrysotile, another form of asbestos, in products that it manufactured and sold. Grace continued to mine vermiculite until the 1990s, selling asbestos containing fibers and commercial and consumer products for years after other major companies stopped such sales. Despite its large numbers of asbestos products and its sales of asbestos containing fibers and products in eight decades, Grace arrived late as a primary asbestos defendant before quickly becoming one of the greatest current targets of litigation by the time of its bankruptcy petition.

Data Sources

In analyzing and forecasting Grace’s asbestos liabilities we use a 2002 Grace claims database. We also consider and draw upon the experiences of other asbestos defendants who have continued to receive and settle asbestos claims during the six years since Grace entered bankruptcy. We can better understand what would have been Grace’s asbestos liability at and after its petition date by examining what has happened with other defendants in these last six years. Our forecasts also consider effects of recent and foreseeable continuing changes in the asbestos litigation environment.

Accepted Method for Estimating Asbestos Liability

We use standard forecasting methods that have been regularly accepted by courts, asbestos trusts and businesses for establishing asbestos liabilities. Asbestos liability is estimated as the product of three factors: (1) the number of claims, (2) the fraction of claims that get paid and (3) the paid values of those claims.

Concerning (1), the *number of pending claims* is generally known or can be derived from available data. To forecast the *number of future claims*, we use standard forecasting methods that rely upon proven epidemiology, Grace’s own trends in claim filings, its levels of past claim filings, and information on trends and levels of filings against other asbestos defendants before and during the six years that Grace has been in bankruptcy.

Concerning (2), the *fraction of claims* paid by Grace, we first analyzed at, but did not adopt,

Grace's actual history before its bankruptcy when it rejected 8 percent of mesothelioma cases and 4 percent of nonmalignants, lung, and other cancers. Instead, for two reasons, we forecast that Grace would now reject many more cases. First, Grace now asserts an aggressive litigation strategy that is sharply different from the strategy it employed in the past, a strategy that would challenge and likely reject many more claims. Second, since Grace's bankruptcy petition, asbestos litigation has changed in ways that might reduce the number of claims that Grace would now pay. Based on these reasons we forecast that Grace would now reject 42 percent of nonmalignant claims and most likely about 20 percent of cancers claims, but possibly as many as 33 percent of cancers.

Concerning (3), we forecast *amounts that Grace would pay* by looking at amounts that it had paid before bankruptcy, trends in Grace's payments, and amounts paid by comparable defendants at and after Grace's bankruptcy petition--all standard sources of information used in estimating asbestos liabilities. These sources provided four different sets of settlement data which we analyzed using three different analytic methods. We used these analyses to derive five alternative estimates of amounts that Grace would now pay to asbestos claimants. The results of these alternative analyses are robust. All yield markedly similar predictions: that amounts of Grace's payments would have continued to increase at their rates of increase before Grace's April 2001 bankruptcy petition.

Choice of Conservative Estimation Methods

Our forecasts are based on conservative assumptions and analyses that are more likely to underestimate, rather than overestimate, Grace's liabilities. Many of these assumptions and reasoning that supports them are consistent with Grace's own statements at the time of its bankruptcy about its asbestos liabilities.

Grace's annual claim filings were increasing sharply before its April 2001 petition date. As Grace itself recognized, its future filings would likely have increased further after the 2000 and 2001 bankruptcy filings by other target defendants removed those defendants from asbestos litigation, and also as a result of increasingly negative publicity about Grace's asbestos activities. Despite Grace's reasoned expectations of more future claims, we forecast conservatively that after April 2001 Grace would have received far *fewer* annual claim filings than it had been receiving before. We forecast that Grace's nonmalignant claim filings in 2002 would have been 30 percent below its pre-petition (2000-2001) levels and that filings would decrease continuously from there in all future years. We forecast that Grace's future cancer filings would also have been at least 20 percent below its pre-petition filing levels for all future years.

Our forecast of sharp decline in Grace's claim future filings implies that plaintiffs' lawyers would be more selective in choosing which claims to file against Grace so that future claims would be of higher quality than claims filed with less selectivity before Grace's bankruptcy. The history of asbestos litigation shows such inverse relationships between the number and the quality of claim filings, as Grace's lawyers recognized. Despite the expectation that reduced future filings would yield higher quality claims against Grace, we conservatively forecast that Grace would *reject far more* of these future claims than it had in the past. Together our two future claims assumptions, that Grace would both receive far fewer claims and also pay far lower fractions of those claims, means that after April 2001 Grace would pay *only about half as many* asbestos claims each year as it had paid before its bankruptcy petition.

For many reasons, after April 2001 Grace would have paid more on average to the reduced number of claims that it did pay. By 2001, past settlement averages for Grace and other defendants had been increasing over more than a decade, and averages among other defendants continued to increase after April 2001. We forecast that after April 2001, Grace's settlement averages would also have continued to increase as they had for many prior years. We derived five

alternative estimates of the amounts of these increases based on past trends in Grace's settlement averages and on trends among other asbestos defendants.

But several important events would have caused Grace's settlement averages to increase at rates even greater than in the past and at rates greater than increases among other defendants. First, compared to the claims that it paid pre-petition, claims paid by Grace after April 2001 would be more selective and higher quality, giving them greater value. As I have described above, we forecast two changes in how claims are filed against and handled by Grace, both of which would involve more intensive screenings that would weed out weaker, low value claims: (1) Law firms would review claims more selectively as they file fewer claims, and (2) Grace would then follow with an intensified scrutiny leading to rejections of far more claims. As a results of these intensified reviews, Grace would be faced with paying smaller numbers of much more valuable claims. Grace's lawyers recognized both effects of intensified reviews: fewer claims paid, but higher payments. Second, as Grace also anticipated, changes in asbestos litigation would have forced it to pay more to settle claims. The break-up of the Center for Claims Resolution, a defendants' consortium that had made the largest contributions to plaintiffs' settlements, and then bankruptcy filings by eight other major defendants cost plaintiffs major sources of indemnification. After April 2001 Grace would have faced increasing demands by plaintiffs to make up some of this lost compensation forcing Grace to increase what it would pay to settle claims. Third, as Grace also anticipated, it would be forced to pay increasing settlement values because of the highly negative publicity about its asbestos activities, a pressure that increased markedly after April 2001.

Liability for Pending Claims

Grace's data show 135,190 asbestos claims pending at the time of its bankruptcy petition, including 18,520 claims that Grace reports as already liquidated for a total amount of \$62.5 million. We do not include these 18,520 in our pending claim forecast, but separately value them by their amounts stated in Grace's database. This leaves 116,670 Grace claims that were pending and unliquidated on its petition date. We forecast conservatively that between one third and one half of these pending claims will present no liabilities to Grace and no value to our forecasts. We estimate that about 14,000 of these claims either do not have any asbestos related disease or else are abandoned claims no longer being pursued against Grace (12 percent of unliquidated pending claims). We estimate that Grace would reject about 40,000 more claims after increased scrutiny, leaving about 60,168 pending claims to be paid. Grace's liability for these unliquidated pending claims would be between \$453 and \$564 million at the date of settlement (2002). Adding in the value of liquidated claims, we estimate a range of liability between \$516 to \$627 million for all pending claims.

Despite its deteriorating litigation position, we forecast that Grace's costs for resolving its unliquidated pending claims would be lower than Grace's actual costs before its bankruptcy. We forecast that Grace would pay between 19 to 28 percent less than the average amounts that it cost Grace to resolve claims during 2000 to April 2001.

Liability for Pending and Future Claims

We provide ten alternative estimates of Grace's liability for future claims (i.e., those claims that would have been filed against Grace after April 2, 2001 but for its bankruptcy petition) and for the total of all pending and future claims (5 alternative estimates of settlement values times 2 alternative payment rate estimates--the percent of claims that Grace would resolve through payment).

I fully report calculations and results for all ten alternatives in this report, but show here the average estimates of Grace's total liability based on the five most likely forecasts. Table ES-1 shows our forecast of Grace's liability for pending future claims averaged across our five alternative settlement value estimates assuming for each forecast the more likely *reduced* payment rates (i.e., Grace would pay 58% of nonmalignant claims and 78 percent of cancers). Based on these conservative assumptions that are favorable to Grace, its total liability for pending and future claims would be about \$5.3 billion (present valued and in year 2001 dollars). Grace's liabilities costs would distribute 59 percent for mesothelioma claims and only 30 percent for nonmalignant claims.

Table ES-1: Present Value of Grace Liability for Pending and Future Claims
(Average of Five Alternative Estimates of Grace's Liability)

Period	Forecast Indemnity PV				
	Meso	Lung	OthCan	Nonmal	Total
Pending	\$249	\$91	\$12	\$228	\$578
Future	\$3,196	\$474	\$71	\$1,022	\$4,763
Total	\$3,445	\$565	\$83	\$1,250	\$5,341

Notes: Millions of 2001 dollars. Future claims are assumed to settle 2 years after filing, pending claims in 2002. Indemnity is inflation adjusted at 2.5% per year. Discount rate is 5.11%.

Table ES-1 shows estimates that are neither our highest nor lowest forecasts. Liabilities ranges plus or minus 8 percent using different forecasts of Grace's future settlement values. Our five alternative settlement value models forecast Grace's liability between \$5.1 billion and \$5.8 billion. All share assumptions that about 20% of the lung and other cancer claims would be resolved without payment (compared to 3-5% pre-petition), and that 22% of mesothelioma claims would be resolved without payment (compared to 8% pre-petition). Grace's asbestos liability still ranges between \$4.4 billion and \$5.0 billion when we assume implausibly favorable future litigation outcomes for Grace: that over the last six years it would have received 33 percent fewer claims per year than at the time of its bankruptcy, but would also reject mesothelioma claims at rates five times greater than it had before bankruptcy and all other cancers at rates seven to ten times higher.

Conclusions

Based on the conservative assumptions of these forecasts, it is my opinion that the present value of Grace's liability for pending and future asbestos bodily injury claims as of April 2, 2001 range will be between \$4.4 and \$5.8 billion and most likely between \$5.1 and \$5.8 billion.

1. Overview of Report

This report summarizes results of analyses to estimate the liability of W. R. Grace (“Grace”) for asbestos personal injury claims that had been filed and were unresolved (“pending claims”) and claims that would be filed in the future (“future claims”) as of the date of Grace’s bankruptcy petition, April 2, 2001.

In Section 2 I discuss my training, background, and experience in studying asbestos litigation and in performing forecasts like those in this report.

Section 3 of this report discusses Grace’s unusual history in mining, processing and selling an unusually wide array of asbestos containing products and in asbestos litigation.

In Section 4, I discuss issues of estimation for asbestos liabilities. I discuss methods for forecasting and valuing claims that have been regularly accepted as the basis for courts’ past estimates. Throughout this section (and the entire report), I describe the many ways that our forecasts are consistent with Grace’s own view of its asbestos liabilities at the time of its bankruptcy and conservatively underestimate, rather than overestimate, Grace’s liabilities.

In Section 5 I describe our forecasts of Grace’s liability and the data and information upon which we rely.

In Section 6, I describe our forecast methods and results. Despite changes in asbestos litigation that would have likely increased Grace’s future claim filings, we forecast the number of Grace’s future claims conservatively, assuming that had it not entered bankruptcy it would have received fewer claims filings than it had been receiving before its April 2, 2001 bankruptcy petition. We assume further that Grace would have sharply reduced the fraction of these claims that it paid: in the future rejecting between 20 and 35 percent of cancers and between 24 and 42 percent of nonmalignants compared to 6 percent of cancers and 4 percent of nonmalignants that it rejected pre-petition. We estimate that Grace’s liability would range between \$4.4 to \$5.8 billion, most likely between \$5.1 and \$5.8 billion (present valued to year 2001 dollars).

In Section 7.3, I discuss sensitivity analyses which show the effects of various assumptions about claims forecast and valuation parameters. The results here show an extended range of estimates: total liabilities from \$3.7 to \$6.8 billion.

Based on the conservative assumptions of these forecasts, it is my opinion that the present value of Grace’s liability for pending and future asbestos bodily injury claims as of April 2, 2001 range will be between \$4.4 and \$5.8 billion and most likely between \$5.1 and \$5.8 billion.

2. Dr. Peterson's Qualifications

For over twenty-five years, I have studied, written about, and participated as a special master and expert in asbestos litigation and other mass tort litigation. I am a lawyer, a graduate of Harvard Law School, and a recognized scholar on asbestos and other mass tort litigation. I have a doctorate in social psychology from the University of California, Los Angeles. For over twenty years, I conducted research on asbestos and other mass tort litigation as a founding member of the RAND Corporation's Institute for Civil Justice. I have published many scholarly, peer-reviewed, articles on asbestos litigation, mass torts, and workers compensation, including articles on: how asbestos and other mass tort claims arise, how the values of asbestos bodily injury claims are determined by medical and legal issues, evaluations of claims facilities used for paying asbestos and other mass tort claims, and other subjects related to asbestos litigation. I have taught courses on mass torts at UCLA Law School and the RAND Graduate Institute. My resume is attached to this report as Exhibit 1.

I am an expert on claim values, claims procedures, and estimations of liabilities for fifteen asbestos trusts. I am a trustee of the Fuller Austin Settlement Trust, an asbestos trust, and a director of TSI, a nonprofit corporation that administers the trust distribution procedures for seven asbestos trusts. Effective July 1, 2007 I will become a trustee of the Manville Personal Injury Settlement Trust. I have worked as an expert on asbestos litigation for judges, defendants, insurance companies, actuarial firms, other businesses, law firms, and claimants' committees in bankruptcy.

I have worked for four U.S. District and Bankruptcy Courts as the Court's expert on how asbestos claims are determined to have value, on asbestos claims procedures and trusts and other matters. As the Special Adviser to U.S. District Court Judge Jack B. Weinstein and U.S. Bankruptcy Court Judge Burton Lifland, I helped the courts and parties to restructure the Manville Trust, establishing the Manville Trust Distribution Procedures that became a model used in subsequent bankruptcy cases and by later-created trusts to process, allow, and pay the hundreds of thousands of asbestos claims that they have received so far.

I have been an expert in more than twenty other bankruptcies and class actions in different cases working for parties with divergent interests: asbestos claimants' committees, defendant asbestos companies, insurance companies, and court-appointed representatives for future claimants. In each of these cases I have provided descriptions and quantitative forecasts of pending and future asbestos bodily injury claims using the standard forecasting methods that I describe and use in this report. I have testified in court more than twenty times about my forecasts of asbestos liabilities. My forecasts and analyses have been accepted and used as the court's basis for findings of aggregate asbestos liabilities in the bankruptcy proceedings of Eagle-Picher, National Gypsum, Babcock and Wilcox (confirmation hearing), Turner & Newall, Western Asbestos, Armstrong, API, C. E. Thurston, H. K. Porter, E. J. Bartel, Raymark, and J. T. Thorpe.

I have been recognized by courts as an expert on all areas that I address in this report, and the descriptions and analyses in this report come from my scholarship and work as an expert on asbestos litigation. A listing of the matters in which I have testified as an expert within the past four years (deposition or trial) is set forth as Exhibit 2.

I have been retained by the W. R. Grace Official Committee of Asbestos Personal Injury Claimants ("ACC") as an expert for purposes of estimating asbestos liabilities and providing testimony on those matters. This report has been prepared as part of that engagement.

3. Grace's Asbestos Business and Litigation

Grace was significantly involved in the business of mining, manufacturing and selling asbestos-containing products. Zonolite Company, which Grace acquired in 1963, began in 1923 to mine vermiculite, an ore that was contaminated with tremolite, a particularly dangerous amphibole form of asbestos. Zonolite and then Grace continued to mine vermiculite until 1990, according to the company, using the vermiculite in a wide range of industrial and consumer products sold to the public [www.grace.com/html/reorg/history.html "Financial Reorganization: Asbestos Litigation Chronology"]. News reports claim that Grace continued to ship vermiculite even longer, into 1993 [seattlepi.com, "Asbestos study is expanded nationwide," January 18, 2000].

Vermiculite, contaminated with as much as 7 percent tremolite asbestos, was shipped in box cars throughout the country, off-loaded, and stored in open piles at dozens of sites, and then processed at 60 expansion and other plants in the U.S. and Canada (Seattle Post-Intelligencer: Deadly Ore Was Shipped Around U.S., Canada, December 22, 1999; Vermiculite, Respiratory Disease and Asbestos Exposure in Libby, Montana: An Update of a Cohort Mortality Study. Patricia A. Sullivan, National Institute of Environmental Health Sciences, National Institutes of Health, U.S. Department of Health and Human Services, January 2007, p. 6)

Grace also used chrysotile, another form of asbestos, in products that it manufactured and sold. Grace's High Temperature Insulation Cement was 15-19% chrysotile. Monokote, Grace's first spray-on insulation product, contained 12% asbestos, including both chrysotile and expanded vermiculite [seattlepi.com, August 23, 2000; industryweek.com "The Editor's Page--W. R. Grace's Disgrace," August 13, 2001; New York Times, July 9, 2001]. Because spray-on insulation makes asbestos fibers airborne (friable) by design, they are readily inhalable and particularly dangerous types of asbestos-containing products. Grace reports that it removed chrysotile from later formulations of its line of Monokote spray-on insulation and claimed that levels of vermiculite remaining in the products did not constitute health hazards [W.R.Grace & Co., Grace. News, "GRACE REAFFIRMS THAT ITS FIREPROOFING PRODUCTS SOLD IN THE 70s AND 80s ARE SAFE"]. But both plaintiffs' lawyers and newspapers challenge Grace's safety claims, alleging that studies conducted by both the EPA and by Grace found that tremolite levels in Grace's vermiculite products were highly variable, were at times greater than reported by Grace, and that Grace's products could cause asbestos disease and death [seattlepi.com, August 23, 2000; industryweek.com "The Editor's Page--W. R. Grace's Disgrace," August 13, 2001; New York Times, July 9, 2001]. Disagreements about Grace's safety claims are featured in the bodily injury litigation against the company and are bases for plaintiffs' claims both that the Grace's products were defective and also that the company falsely claimed that the products were safe despite knowing that its own studies showed the products to be unsafe [New York Times, July 9, 2001]. The Seattle Post-Intelligencer quoted a 1969 report by R. M. Vining, head of Grace's construction products division, to Peter Grace, company president, describing the "serious health hazard caused by the presence of vermiculite and asbestos dust." "The dust problem is particularly serious since the vermiculite ore from Libby contains tremolite asbestos.... Tremolite asbestos is a definite health hazard at both the Libby operation and at the expansion plants using the ore" [seattlepi.com, December 22, 1999].

3.1. Grace Asbestos Products and Resulting Exposures

Grace sold a wide range of asbestos-containing products, about 200 products or product names according to lists provided by the company in these bankruptcy proceedings. These include a variety of insulation products; construction products (including cements, plasters and other surfacing materials, paint, spray-on products, caulks, mastics, flooring, roofing, sheet rock, waterproofing); automotive products (including gaskets, sealers, adhesives, spray-on undercoating); asbestos tapes, papers, gaskets and textiles; loose vermiculite home insulation;

industrial equipment (such as drying ovens); medical products (such as filters and adhesives); and exotic products (such as livestock feed, gardening products). While a large fraction of Grace's asbestos claims in the past have arisen among construction workers, the company caused industrial exposures among a much broader set of workers, including

1. Miners
2. Expansion plant workers, vermiculite plant workers
3. Insulators
4. Railroad workers
5. Health care workers
6. Plant workers
 - Soil and lawn products
 - Wallboard and sheet rock products
 - Cement products
7. Nursery workers
8. Laboratory workers
9. Automobile workers

[seattlepi.com "Asbestos protection pledged for workers, August 23, 2000; Grace answers to product interrogatories; Grace claims database]. The Seattle Post-Intelligencer reported that 200,000 or more workers used vermiculite on a regular basis [seattlepi.com, August 23, 2000]. Other exposures would have occurred among workers proximate to areas where Grace products were being unpacked, mixed, cut, sprayed or installed. Most famously, Grace also caused asbestos exposures among residents of Libby, Montana and at other locations where Grace's vermiculite was transported, off-loaded, stored and processed (such as Northeast Minneapolis, Glendale and Phoenix, Arizona and 25 other sites addressed by EPA).

Grace continued to manufacture and sell its asbestos containing products well beyond the time when most other, primary defendants had withdrawn from asbestos business. Commercial use of asbestos peaked in the United States in 1973. By 1979 usage had dropped sharply and most defendants had quit making and marketing asbestos products. In contrast, Grace continued to mine, make and sell asbestos-containing materials and products into the 1990s. Earlier, as other defendants were reducing their sales of asbestos products, Grace increased its manufacturing and marketing. Grace claimed that during the 1970s and 1980s its spray-on insulation Monokote was used in 60% to 80% of the country's 150,000 steel-frame structures [New York Times, "Protecting the Product: A special report: Company's Silence Countered Safety Fears About Asbestos," July 9, 2001].

3.2. Timing and Values of Grace Claim Filings

Because Grace continued to make and sell asbestos products after other defendants quit, it now faces greater and longer-extending asbestos liability than other defendants. Asbestos related disease--both cancers and nonmalignancies--have long latencies, taking many years after first exposure before the diseases begin to appear and peaking decades later (the median latency period is around 40 years after first exposure for mesothelioma and 30 years for other diseases). For most asbestos defendants who had stopped selling asbestos products by 1980, the numbers of injuries and deaths caused by their products have now reached their peaks, although injuries and deaths will continue for decades at slowly declining rates. Indeed, the mostly widely accepted epidemiological forecast, by Drs. Nicholson, Perkel and Selikoff at New York's Mt. Sinai Hospital, projects a peak around 2004 in annual U. S. mesothelioma deaths resulting from pre-1980 work-place exposures to asbestos, while asbestos-related deaths from lung and other cancers peaked during the 1990s (see Section 6.2.1). But even though incidences of asbestos-related cancers have now begun to slowly decline, cancer filings against many defendants have continued to rise in recent years, because increasing percentages of new asbestos-related cancer

victims now file claims and law suits.

Prior to its bankruptcy, filings against Grace increased at even greater rates than rates of increase among other defendants. Grace's 2000 filings were almost double its 1999 filings (46,861 in 2000, 24,576 in 1999). During the three months in 2001 to the time of its April 2, 2001 bankruptcy petition, Grace received 33,653 claims, 37% more claims in three months than in all twelve months of 1999. Its annualized rate of 2001 filings was up almost 50 percent over 2000 (68,683 when conservatively annualized across the rate of claims from January 1999 to April 2001). The amounts paid by Grace to settle asbestos claims were also increasing markedly at the time of its bankruptcy (settlement amounts paid by other asbestos defendants also increased markedly before and after Grace's bankruptcy petition, particularly for mesothelioma and other cancers). In other words, claim filings against and payments by Grace at the time of its bankruptcy were at their highest points ever, and both were increasing, a broad deterioration in its litigation that Grace itself acknowledged in its 2000 Annual Report:

“During 2000, the number of bodily injury claims made against Grace increased significantly compared to 1999 and prior claim levels, with a total of 48,786 injury claims being received in 2000, versus 26,941 in 1999. Also costs to resolve asbestos litigation were higher than expected for bodily injury and certain property damage claims” (Grace 2000 Annual Report, p. 12).¹

Grace recognized that it would have continued to be among the most frequently sued asbestos defendants had it not filed for bankruptcy protection. Grace described the asbestos litigation that it faced at the time of its bankruptcy petition as:

“an environment that increases the risk of more claims being filed against Grace than previously projected, with higher settlement demands and trial risks” (ibid).

Grace identified its recently increasing claim filings and costs and the recent bankruptcy petitions by “five significant co-defendant companies in bodily injury litigation” (ibid) as causes of the increasingly threatening litigation environment that it faced. These certainly contributed, but there were also other important reasons why Grace would have faced increasing claims and higher settlement costs after April 2, 2001.

First, because Grace continued to produce and market asbestos containing insulation products into the early 1990s, later than other asbestos manufacturers, it would continue to become a more prominent asbestos defendant facing increasing responsibility for asbestos injuries that would occur in future years. Many workers were exposed to Grace asbestos containing products in relatively recent years, a period when other manufacturers were reducing and then stopping the sales of asbestos-containing products. Grace's asbestos containing products were sold and used during and after the late 1950s, a period that started and went on later than is typical of other asbestos defendants. Due to these later exposures, the asbestos-related diseases and, consequently, future law suits that will occur among persons exposed to Grace products will continue on in later years and in greater numbers than claims against most manufacturers whose products had exposed workers over periods of years earlier than Grace's exposure years. As time passes, asbestos disease and claims will increasingly be among the more recently exposed workers, the years in which Grace's exposures are concentrated. Moreover, the share that Grace will have to pay to settle these future claims would increase. As time passes fewer of Grace's co-defendants will have contributed to injuries caused by recent asbestos exposures and fewer will contribute to compensation of those injuries. Grace will be one of the few manufacturers

1. Our analyses show that after we eliminate duplicate claims in Grace's database, actual filings in each year are about 2,000 less than reported in the 2000 Annual Report. See, Table 29 below.

responsible for recent asbestos exposures and the injuries that result from these exposures.

Second, Grace has increasingly become a “target defendant”. Even before its bankruptcy, Grace had become a primary target defendant, receiving concentrated attention from asbestos exposed workers, their lawyers and the media. News media, including a feature article in the New York Times, a continuing series of articles in the Seattle Post-Intelligencer, and a nationally televised ABC news magazine feature on Libby Montana, discussed and condemned Grace’s asbestos exposures of workers and the general public. Media coverage concentrated on Grace’s continued mining and sale of asbestos-containing insulation products into the 1990s, decades after the dangers of asbestos had become evident and other manufacturers had withdrawn asbestos-containing insulation products, and on Grace’s failure to warn about dangers of its operations and products.

Since its April 2001 bankruptcy, Grace has become the most visible and criticized asbestos defendant in the U.S. even while its bankruptcy has prevented continuing litigation. Grace’s exposure of workers and residents in Libby Montana has been extensively discussed in newspapers, television, a 2004 book (republished in paper-back in 2005)² and a documentary film--a level of recent negative publicity that has not been focused against any other asbestos defendant. The U. S. Justice Department’s 2005 indictment of Grace and some its employees not only intensified this publicity, but gave “legs” to the story, assuring that it would remain before the public for years. EPA investigations, reports and abatement actions in Libby, Minneapolis, Phoenix and other locations have repeatedly brought attention to Grace’s asbestos activities and exposures in multiple jurisdictions across the country. Discussion surrounding proposed federal legislation to create a national asbestos compensation fund focused on Grace’s contamination of Libby and sites across the country as claimants’ groups, unions, and politicians fought to get their constituents the same favorable treatment that the legislation would have provided to residents of Libby.

All of these events, documents, and negative publicity increase the likelihood that plaintiffs and their lawyers will sue Grace for causing their asbestos exposures and injuries. These documents and publicity would have likely increased Grace’s exposure to large trial verdicts and, in turn, to large settlements that reflect Grace’s risk of such large verdicts. The increased asbestos liability pressures on Grace would have occurred during a time when liability costs were growing sharply across defendants.

The third reason pressuring Grace toward paying greater settlement values would have been that defendants’ costs for resolving asbestos cases have increased greatly since Grace entered bankruptcy, particularly the size of plaintiffs’ trial verdicts, which lead to higher settlement demands and costs. Table 1 shows that plaintiffs’ compensatory trial verdicts have increased sharply since 2000. Average cancer verdicts over the past six years are more than double the amounts during 1993-2000, the last years preceding Grace’s bankruptcy petition. Since 2001, verdicts for mesothelioma plaintiffs have averaged \$7.5 million (2001 to 2006), a two-fold increase over the \$3.7 million during 1993-2000; the average verdict for lung cancer reached \$2.9 million, about 2.5 times average lung cancer verdicts before 2001 (Table 1). The increase in verdicts for asbestosis was *more* striking. Prior to Grace’s bankruptcy (1993-2000) plaintiffs with asbestosis received on average \$0.6 million; since 2001 the average compensatory verdict among the 111 successful trial plaintiffs reached \$4.4 million. In an era in which legislatures, courts, defendants and plaintiffs lawyers have turned away from paying less serious or questionable nonmalignant claims, courts continue to recognize and highly compensate victims of real and

2. An Air that Kills: How the Asbestos Poisoning of Libby, Montana, Uncovered a National Scandal. Andrew Schneider and David McCumber (G. P. Putnam’s Sons, 2004).

serious asbestosis.

These patterns of sharply increased plaintiffs' damage awards are not simply the result of a few extraordinarily large verdicts. Table 1 also shows the median (50th percentile) verdict within each disease category.³ Median verdicts also increased sharply, almost doubling among mesothelioma verdicts, almost tripling among lung cancer verdicts, and increasing four-fold among verdicts for nonmalignant diseases. In other words, since 2001 asbestos defendants now face much higher verdicts in all cases. And, as I discuss in Section 4.3.3.2 below, these increasing verdicts are reflected in increasing settlement amounts demanded by plaintiffs and increases in settlement amounts paid by defendants (Figure 3 and Figure 4; Table 10 in that section).

Table 1: Asbestos Trial Verdicts for Compensatory Damages:
Per Plaintiff Awards

Statistical Quantity	Period	Award, by Disease			
		Meso	Lung	Othc	Nonm
Average	1993-2000	\$3.7	\$1.2	\$1.5	\$0.6
	2001-2006	7.5	2.9	8.9	4.4
Median	1993-2000	\$2.2	\$0.6	\$0.3	\$0.3
	2001-2006	4.1	1.6	9.6	1.8

Notes: Compiled from Mealey's Asbestos Litigation Reporter. Entries in billions of 2006 dollars.

Had it not been protected by the bankruptcy stay, Grace too would have been subject to these sharp increases in amounts that juries awarded to asbestos plaintiffs. Its highly adverse events during this period--unfolding of the Libby story and similar stories in other locations across the country, scathing newspaper reports, the critical book, documentary and television coverage, and then the indictment--would have made Grace a prime target for trials and the likely recipient of adverse verdicts at least as large as those actually entered against other defendants since 2001.

3. Note that while the median represents the midpoint value--half the verdicts are greater and half are less--medians do not represent what defendants such as Grace would have to pay. Defendants and their insurers have to pay all adverse judgments. The "average" (arithmetic mean) represents the cost per claim, since it is calculated by dividing total verdicts, which defendants must pay, divided by the number of plaintiffs who received a verdict.

4. Estimation Methods

4.1. Uses of Credible Estimation

Forecasts of asbestos liabilities are needed and have become commonplace in many different circumstances. Asbestos defendants estimate their present and likely future liabilities both for their own corporate planning and also as part of financial reporting. Insurance companies forecast asbestos liabilities to create reserves for specific insureds. Insurance rating organizations forecast liabilities of insurance companies. Financial analysts forecast liabilities of specific asbestos defendants and insurance companies. Businesses forecast liabilities of other companies that face asbestos liabilities in order to determine whether or not to engage in business activities with the companies that face such liabilities. Asbestos trusts are required to forecast their liabilities in order to determine how much money must be reserved for future claimants and what amount can be paid to claimants with presently pending claims, forecasts that are required by the U.S. Bankruptcy Code. Parties to bankruptcy proceedings forecast liabilities in order to draft reorganization plans and disclosure statements. Bankruptcy courts estimate the asbestos liabilities of debtors. Other courts estimate the asbestos liabilities of particular defendants in the course of class action, insurance coverage or other litigation.

These forecasts have been done in many ways, with highly varying quality and credibility.⁴ Credible forecasts of asbestos defendants' liabilities--those that have been accepted by trustees who are fiduciaries to both present and future claimants, that have been accepted by courts in estimation hearings and forecasts that have been confirmed by subsequent claims data--share several key features:

- The forecasts draw upon data about the defendant's own past experience and the contemporaneous experience of other asbestos defendants with asbestos claims--counts of claim filings, distributions of asbestos diseases, resolutions of claims both with and without payment through judgments and settlements, trends for all of these elements of liability.
- The forecasts consider developments and the state of asbestos litigation at the time of the forecast and reasonable expectations about future developments. Where, as here, forecasts are being made as of an earlier point in time, forecasts can and should rely on data and

4. Some forecasts have had influence and currency despite using methods and producing results of poor quality. For example, estimations by putatively solvent companies for SEC purposes have routinely and notoriously underestimated asbestos liabilities as shown by the following comparison of estimations in financial statements for four companies with courts' determinations of those liabilities (Table 2).

Table 2: Defendants' Financial Reports Underestimate Liabilities

Defendant	10k Estimate	Court Estimate
McDermott (B&W)	\$1.3	\$7 to 9
Armstrong	\$0.7	\$3.1 or more
Owens Corning	\$2.2	\$7.0
Federal Mogul	\$1.6	\$9.0

Note: Entries in billions of dollars of the reporting dates.

developments that have occurred since the date for which forecasts are made.

- The forecasts reflect the epidemiology of asbestos-related diseases, both past trends as well as expected future trends in the incidence of asbestos-related disease, past trends and expected future trends in filings of claims for those diseases, and both past and expected future trends in the amounts paid to indemnify those claimants.
- The forecasts value asbestos claims as they have been valued in reality by defendants, plaintiffs and courts as shown by trial judgments, if any, and settlements that reflect the business judgment of all parties as to the likelihood that a plaintiffs could obtain a judgment, anticipated indemnity payments and litigation costs, the parties' risk preferences and assessments of the time value of money. These forecasts avoid and attempt to adjust for artificial effects of matters such as deadlines, bar-dates, stays or moratoria on claims filings and resolutions each of which affect litigation in ways that do not occur and would not recur in the ordinary tort litigation of the defendant's asbestos law suits.
- The forecasts attempt to predict the future behavior of litigants: filing behavior among victims of asbestos disease and their lawyers; how defendants, plaintiffs and courts will value and resolve claims in the future. Because these are forecasts of objective future events, they cannot be based on the experts' or their clients' subjective, personal views about which claims should or should not be paid or how much a plaintiff deserves to be paid. Rather the forecasts are based on actual past behavior of plaintiffs and law firms in filing claims and on how defendants, plaintiffs and courts have actually valued and resolved the asbestos claims.

Courts, litigants, businesses, trusts and others rely upon estimations of asbestos liabilities. Better forecasts, those that use the sources listed above applying methods that have been tested and found to be reliable, have become important bases for decisions involving tens of billions of dollars.

Forecasts in this report have all of these features of previous forecasts that have been accepted and found credible by trusts, courts and other entities with incentives to determine and rely upon the best possible estimates of asbestos liability.

4.2. Standard Methods for Forecasting Asbestos Liability

To establish an aggregate value of pending and future asbestos bodily injury creditors, bankruptcy estimation looks at how a debtor would continue to receive and resolve claims within the U. S. court systems instead of within the protection of Chapter 11. Standard methods for estimating this aggregate liability start by examining and extrapolating from a debtor company's prior history in asbestos litigation. Some experts characterizes this as estimation based on the proposition that "past is prologue" for future liabilities.

By the time of its bankruptcy petition, Grace had already received 328,658 and evaluated and resolved 193,468 asbestos injury claims within the legal processes that provide the context for now estimating its aggregate current and future asbestos liability. Grace's historic data is particularly important in showing how the company had itself valued asbestos claims in the past and how its values have been changing and could be expected to continue to change further over time. Where, as here, Grace has placed values on 157,084 settled claims (i.e., those claims that were resolved by payment of money to the claimant), we have enormous data on how it valued asbestos claims up to the time of its bankruptcy petition.

In that process, Grace had every interest in evaluating claims with the most accurate and realistic basis it could adopt. Grace and all asbestos defendants (indeed businesses who are defendants in any litigation) address and resolve the asbestos suits brought against them as business judgments, just as plaintiffs and their lawyers do on the other side.⁵ In deciding to settle, defendants look to

the risks and likely amounts that they would have to pay later to resolve claims. They settle to avoid greater future costs--including the costs of paying judgments based on adverse verdicts they might suffer. Like most defendants, Grace sometimes found it advantageous to resolve claims in groups, rather than individually, and normally found it advantageous to resolve claims through settlements, rather than trials, because both decisions lowered its resolution costs (as shown clearly in our analysis of Grace's data at Section 4.3.2.1 below).⁶

The result is that most asbestos claims against Grace were resolved without making a final determination of liability in those claims after a full trial and a jury verdict. Specifically, according to its database and the Snyder expert report (Attachment 2), Grace resolved 193,468 asbestos bodily injury claims prior to its bankruptcy, but only 78 claims were tried to verdict and perhaps another 1,543 were resolved by summary judgment entered for one side or the other.⁷ Accordingly, almost all claims were resolved by negotiated agreements between Grace and plaintiffs.

In this process, Grace was not helpless. Grace refused to enter into large-scale, inventory settlements that were not in its interest.⁸ Grace closed many claims without payment, presumably

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5. In his February 22, 2007 deposition in this case, Jay Hughes, Grace's lawyer who oversaw its asbestos litigation, described Grace's approach to defending that litigation:

A: First of all, you have to understand it's all market driven. I mean we're going to get out of the case based on the amount on money that we can. So it was an economically-driven decision."

(February 22, 2007 Deposition of Jay Hughes, p. 96).

A: We were trying to get the cases at the cheapest possible amount? ["?" in transcript]

Q: That was true in all of your dealing with W. R. Grace, you were trying to resolve the cases for the cheapest amount that you could, correct?

A: Yes.

Q: And you were successful in doing that in your own view, correct?

A: Generally. (Ibid, p. 254).

6. Mr. Hughes described Grace's asbestos litigation strategy: "the management of the asbestos litigation involves the balancing of large-scale settlements with the advantages and disadvantages of a trial settlement/litigation strategy." Ibid.

Mr. Hughes "believed it to be in Grace's interest" to enter into inventory settlement (Ibid, pp. 85-85).

Mr. Hughes lists some ways in which inventory settlements benefited Grace in his February 2, 1999 memorandum to his superior, Bob Beber:

"Such a comparison shows modest savings when inventory settlements are employed to resolve these claims.

"Inventory settlements, however, also reduce outside defense costs and significantly reduce the risk of adverse verdicts.

"Adverse verdicts not only result in an immediate cash requirement far in excess of any reserved amount or anticipated settlement, but tend to adversely affect future settlement values in that jurisdiction."

Ibid, pp. 127-133, Exhibit 113.

7. Some of these cases with verdicts may have been on appeal or might not yet have reached final judgments at the time of Grace's petition.
8. When it could not reach settlements at terms that it found acceptable Grace was prepared to and did go to trial (Ibid, p. 254).

because it believed that the claimants had inadequate evidence of an asbestos-related disease, could not establish a Grace asbestos exposure, or that Grace had a legal defense that would keep a case from ever reaching a jury (Section 4.3.2). In addition, Grace let thousands of claims languish for years without any resolution until they were apparently abandoned (Section 6.1.3). When it did choose to settle, Grace worked to do so under favorable terms. Grace frequently chose the timing of settlements, settling “tens of thousands of cases” early before they had trial dates, because “asbestos claims have little settlement value until a trial date is scheduled.”⁹ Grace also reached an unusual arrangement to settle cases directly with a lawyer who “originated” many of Grace’s mesothelioma claims, settling at lower values than those cases would have received after referral to lawyers who would actually prepare and, if necessary, try those cases.¹⁰ Importantly, Grace paid more or less in settlement depending upon its perception of the strength of liability claims, just as it paid more or less depending upon the strength of injury and damage claims. Mr. Hughes testified that (1) the likelihood that a claimant would show liability, (2) the potential size of a verdict and (3) the impact of large verdicts on its ability to settle later cases were all among a number of issues that determined the amount that Grace would pay in settlement and, indeed, whether it would pay at all (Ibid, p. 97, p. 272, p. 133), along with such other matters as the strength of the medical evidence, the availability of legal defenses, a case’s “jury appeal,” and other factors.

As is true of virtually all tort settlements, in its settlements Grace would have rarely if ever acknowledged liability in a settlement or even necessarily concluded that in its perfect world as designed by asbestos defendants it should have to pay at all. It is also true that plaintiffs would seldom have accepted a settlement with Grace as representing the full measure of their view of Grace’s “true” and “just” liability for the plaintiff’s damages. The tort system for asbestos cases has advantages and disadvantages for both sides. But both sides accepted settlements as a compromise that eliminated their risks and their continuing litigation costs within the actual tort system, not an idealized system that would have been preferred by one side or the other. Grace settled claims because it recognized the risks of those claims: some probability that it would be found liable for an amount greater--usually far greater--than what it had to pay in settlement.¹¹ The record is clear that Grace was able to settle claims, including the most serious, for fractions of verdicts in similar cases (Section 4.3.2.1). Plaintiffs, for their part, accepted less to get faster payment and to eliminate their own risks, which included the risk of receiving nothing.

To determine the amounts that it would pay for settlements, Grace looked to the amounts it had paid in the past, its historic settlements and judgments.¹² Standard asbestos liability estimation methods use an asbestos defendant’s actual past payments in precisely the same way--here estimating how Grace would have fared in further tort litigation had it not entered bankruptcy by

9. Ibid, pp. 104-105; Hughes Deposition Exhibit 152, Jay Hughes memorandum to Paul Norris, president and CEO of Grace, Bates 109-0152.

10. Q: So you established a course of dealing with him in settling mesothelioma claims?

A: Yeah, I established a relationship with Roger, and we settled some cases directly.”

Ibid, p. 255

11. This recognition was key to Grace’s attempts to achieve inventory settlements with law firms, which Grace pursued in part to avoid the risks that some of the clients of the law firm who were subject to the inventory settlements might instead take their cases to trial and obtain verdicts adverse to Grace. Ibid, pp. 130-131.

12. Grace’s past settlements “gave us insight into what plaintiffs would be willing to accept” (Ibid pp. 97-98). But as plaintiffs’ lawyers increased their settlement demands, as they did for mesothelioma in 2000 and 2001, Grace had to increase the amounts of its settlements. (Ibid, pp. 269-270).

taking into account Grace's historic amounts of settlements and judgments, trends in those amounts, and foreseeable future trends. Just as in Grace's past litigation, standard liability estimates assume that some percent of claims would be closed without payment, while the rest would be paid amounts reflecting the parties' assessments of the risks of trials. Standard liability estimates also recognize that claims will differ in their strengths and values, just as Grace recognized when it evaluated claims that it faced. We expect that had Grace not entered bankruptcy, asbestos claims with unchallengable exposures and medical evidence and severe damages would have received large settlements, because Grace faced huge verdicts if those claims were tried. Other claims with debatable exposures or damages would receive small settlements, perhaps nothing, because Grace would have a better chance if those cases were tried. Historically Grace refused some claims and paid both of these types of claims, high and low settlement amounts respectively. Our forecasts reflect how Grace has responded to these differences in the strengths of claims: Grace's history of rejecting claims contributed to our estimations of Grace's future payment rates (Section 4.3.2) and its payment of both high and low settlements figure in our estimations of Grace's future settlement averages (Section 4.3.3).

In looking to Grace's historic payments, we do not assume that all of the claims that it settled would have been determined to have "merit" in that they would have been paid if tried. Rather we make our estimates on the basis that Grace settled claims that presented some financial risks to the company, even modest risks in many cases, and expect that many pending and future claims would also present risks like those that gave value to past settled claims. In sum, our forecasts, like the practices used by Grace (and all defendants) in actually resolving claims, recognize that most asbestos claims are to a greater or lesser extent uncertain and disputed; that most claims present a probability of a verdict adverse to Grace that is greater than zero but less than one (with a similar, complementary range for the plaintiff); and that the settlement values attached to the claim by the parties are the product of each side's assessment of the probability of liability and their assessment of potential damages, their views about risk and their sense of the time-value of money (i.e. the value of money now relative to the value of money in the future).

Accordingly, Grace's past resolutions present the best evidence about how the actual participants in Grace's asbestos litigation had put values on the risks and value-determinants of claims at the time of those resolutions, including their assessment that some claims had no value. This best evidence is available for 193,468 claims actually resolved by Grace and these historic *resolutions* demonstrate how it placed money values on its risks from asbestos law suits at the times and within the litigation system in which it then operated, i.e., state tort law and (primarily) state courts during the 1990s through early 2001. Grace's historic claim *filings* also represent a particular time and litigation environment.

But we forecast for a different period: beginning April 2001 through today and for three more decades in the future. So we must adjust our analyses to reflect changes that have occurred in the litigation environment during the six years since Grace's petition date and other changes that seem likely. We know, for example, that asbestos defendants now pay far more to resolve claims than during the period up to April 2001 when Grace still participated in the tort litigation. We know that claim filings against other defendants have increased for cancers but decreased for nonmalignancies (decreasing overall because so many past claims were for nonmalignancies). We know that many courts and defendants now scrutinize the medical evidence in nonmalignant claims more closely and that some important jurisdictions have changed their tort law to discourage mass filings particularly for nonmalignancies or make their courts less hospitable to non-resident plaintiffs. These changes would have affected claim filings and resolutions against Grace had it remained in tort litigation. Therefore, while we start our analyses with filing and resolution data from Grace's database, we expect that the patterns of pre-petition claim filings against Grace would change, with now more cancer filings and fewer nonmalignant filings. We

expect also that Grace's resolutions would change with the changing litigation environment and, perhaps, changes in Grace's approach to the litigation, so that Grace would close without payment far more claims than it had in the past, but like other asbestos defendants, would pay more on average to the claims that it does pay.

4.3. The Three Parameters of Asbestos Forecasts

Grace's liability for pending claims as well as future claims are determined by estimating three parameters--the number of claims, the percent of claims that will be paid compensation, and the average amount of compensation paid--none of which can be known now with full certainty, but all of which can be reasonably estimated using established and accepted methods.

4.3.1. The Number of Claims

4.3.1.1. The Number of Future Claims

The overwhelming bulk of Grace's liability will be for "future" claims that have not yet been identified, which consist of: (a) injuries that have already arisen through 2006 but whose claim filings against Grace have been stayed by these bankruptcy proceedings (bankruptcy period claims) and (b) injuries and claims that will arise after 2006, (true future claims). The number of filings for both of these types of "future" claims is unknown. Our forecast of the number of Grace claims that would have arisen between April 2, 2001 and today (bankruptcy period claims) is based in part on looking at how many claims have actually been filed against other asbestos defendants over this same period. We use these contemporaneous filing data as part of our forecast of Grace claims that have arisen and would have been filed by now over the years since its bankruptcy petition, claims that were stayed by these proceedings. These bankruptcy period claims are particularly important because a substantial portion of Grace's liability arises during these years.

Data on recent filings against other asbestos defendants also help provide a basis for estimating how many claims will be filed against Grace after 2006. By looking to filing levels and trends before and now five years after Grace's bankruptcy petition, we are better able to estimate year 2007 filings, the starting point for our forecast of true future claims.

4.3.1.2. The Number of Pending Claims

Grace's claims database provides substantial information about claims pending at its petition date, identifying 135,190 claims that had been filed but were not resolved as of that date (Table 3). Although we have substantial information about the number of Grace's pending asbestos claims from its claims database, it is subject to uncertainties about disease mix, about which of these "pending" claims had liquidated values from settlements that had not yet been paid by Grace and about how many claims might have had been abandoned by plaintiffs. These uncertainties about the number of pending claims are modest compared to uncertainties about other parameters used in forecasting and add relatively little on top of the other uncertainties about the number of future claims and other sources of uncertainty about Grace's liability.

Grace's database provides no specific disease for 81,634 pending claims.¹³ As we discuss below (Section 6.1.3), this pattern is typical of asbestos defendants' claims databases and so analysts have developed standard methods for supplementing or imputing specific diseases for such claims.

13. An additional 16,581 claims are described as having an "asbestos-related" disease. We treat these as nonmalignant claims, the least costly to Grace, because Grace's resolutions for "asbestos-related" disease claims were similar to those for identified nonmalignant claims.

Table 3: Numbers of Pending Claims, By Disease and Liquidation Status

Description	Number of Pending Claims					
	Meso	Lung	OthCan	Nonmal	Unspec	Total
Number Liquidated	139	466	215	17,700	0	18,520
Number Not Liquidated	1,406	1,931	477	31,222	81,634	116,670
Total Pending	1,545	2,397	692	48,922	81,634	135,190

Note: Nonmalignant claims include claims classified as “asbestos-related” by Grace.

The various discovery and proof of claim processes in this case show how modestly estimation is affected by the question: how many pending claims have been settled but not paid pre-petition? Although Grace’s historic database reports that among the 135,190 unresolved asbestos claims, 18,520 have been settled but not fully paid (Table 3), more than twice as many claimants (38,953) filed POCs for the October bar date asserting that they have settled but unpaid claims. There is relatively little difference in Grace’s aggregate liability to the 38,953 reportedly-settled claims depending up whether all or half are treated as pre-petition liquidated claims, so the question has little significance for estimation of Grace’s overall liability for asbestos bodily injury claims. This issue is examined further in Appendix A.

Our primary forecast of liability for pending claims, presented in Section 6, assumes 18,520 pending liquidated claims, as reported in Grace’s historic database.

Finally, some claims identified as pending in Grace’s pre-petition database are likely to have been abandoned by claimants, without being entered as dismissed in Grace’s claims database. These must be excluded in estimating Grace’s liability for pending claims. In Section 6.1.4, I discuss adjustments to our analyses to reflect a reduction for abandoned claims.

4.3.2. Payment Rates--The Percentage of Grace Claims That Would Be Compensated

As I discuss above and in later sections of this report, we reduce the count of pending Grace claims by eliminating claims that have no apparent disease (Section 6.1.3), that have already been settled though unpaid (Section 6.1.3) or that have been abandoned (Section 6.1.4). Among the remaining pending claims, not all will receive payment. This section discusses this second key estimation parameter, the forecast payment rates.

We know Grace’s historic payment rates from its claims data (among resolved claims for each disease, the percent that was closed with payment), but we expect that after April 2, 2001 Grace would pay fewer claims than this historic rate, both because of broad changes in asbestos litigation and also because Grace now represents that it might have changed its litigation strategies.

Prior to its bankruptcy, Grace made payments in a very high percent of asbestos claims that it resolved. Among the 14,127 claims that Grace resolved in 2001, fewer than one in twenty was resolved without payment (Table 4). The percent of claims closed by payment was modestly lower during the five prior years.

Table 4: Grace Payment Rates, 1991 to April 2001

Settlement Year	Payment Rates			
	Meso	Lung	OthCan	Nonmal
1991	56.8%	51.4%	41.4%	51.8%
1992	71.2	76.2	73.8	75.1
1993	53.6	52.8	72.5	23.1
1994	60.0	80.9	93.0	67.7
1995	76.5	91.3	91.5	84.8
1996	85.6	95.0	97.1	96.1
1997	93.8	96.3	95.8	97.5
1998	86.9	94.4	96.4	96.1
1999	90.4	89.6	86.4	93.2
2000	90.0	93.9	95.8	96.4
2001	95.7	97.8	98.5	96.1

Note: Among claims that Grace resolved, the percent that were resolved with payment

Despite this fairly stable five year pattern, we expect that Grace would *not* have continued with such high percentages of payment among resolved claims had it continued in tort litigation after April 2, 2001. As discussed in the following sections, two developments might contribute to reduction in Grace's payment rates for pending and future claims.

4.3.2.1. Effects of Litigation Strategies on Grace's Payment Percent

First, Grace might have adopted a different strategy for resolving its asbestos claims that would have lowered its payment rates (but that, in turn, would have increased the average settlement amounts that it would pay to claimants receiving payment). Grace's pre-petition database shows it used two primary approaches to resolve asbestos claims:

- group settlement agreements that Grace had negotiated with major plaintiffs' law firms, and
- individual or smaller group resolutions.

Jay Hughes, Grace's senior litigation counsel, described the differing results that Grace obtained with each of these methods. Hughes' February 2, 1999 memo to R. H. Beber provided his "thoughts on Grace's future strategy for defending and resolving asbestos bodily injury claims:

"... management of the asbestos litigation necessarily involves balancing the (1) predictability, (2) lower per case settlement costs, (3) decreased outside legal expense, and (4) increased filing rates associated with large scale settlements with the (1) higher per case settlement costs, (2) increased outside legal expenses, (3) lack of predictability, (4) lower filing rates, and (5) higher dismissal rates associated with a trial settlement/litigation strategy." Exhibit 113 to Hughes Deposition, BOCAS 0000692-3.

Grace's balance between these two approaches for resolving asbestos cases differed among diseases (Table 5). Grace resolved mesothelioma claims primarily through individual or smaller group settlements (79% of mesothelioma resolutions), but resolved nonmalignant and other cancer claims primarily through group settlements (60% group settlements among lung cancers, 69% among other cancers, 70% among nonmalignant resolutions).

Table 5: Grace's Use of Each Resolution Approach, January 2000 to April 2001

Resolution Approach	Number or Percent Resolved				
	Meso	Lung	OthCan	Nonmal	Total
Number of Claims Resolved					
Group	194	1,090	544	25,376	27,204
Individual	732	739	249	10,738	12,458
Percent of Claims Resolved					
Group	21.0%	59.6%	68.6%	70.3%	68.6%
Individual	79.0	40.4	31.4	29.7	31.4

Note: Excludes 3,897 claims resolved with no specified disease.

As Mr. Hughes described, Grace paid very different amounts depending upon which method it used to resolve claims. Grace's data confirm this (Table 6). When it resolved claims individually, Grace was able to reject more claims without payment, rejecting 9% of individually reviewed mesothelioma claims compared to a 2% dismissal rate among mesothelioma claims resolved as parts of groups. For other diseases differences in dismissal rates between the two approaches were even greater. These differences result in part from the greater information that Grace typically had for claims that it resolved individually: Mr. Hughes describes these as "trial settlements," claims that were being prepared for trial after some discovery or other exchange of information. But as Mr. Hughes noted (Ibid), when this greater information and review showed Grace that it could not reject a claim, Grace then had to pay more to settle these more fully developed claims (Table 6). Grace's average settlement paid to mesothelioma claimants was \$104,291 when claims were reviewed and resolved individually compared to an average payment of \$56,476 to mesothelioma claimants resolved as part of large groups. The pattern is the same for lung cancer and nonmalignant claims (the pattern was reversed for other cancers, but these involve few claims and little total liability).

Table 6: Outcomes by Resolution Approach, January 2000 to April 2001

Approach & Outcome	Average or Dismissal Rate			
	Meso	Lung	OthCan	Nonmal
Group Resolution				
Dismissal Rate	2.1%	0.2%	0.0%	1.2%
Settlement Average	\$56,476	\$15,912	\$10,408	\$2,989
Individual Resolution				
Dismissal Rate	9.4%	11.4%	10.4%	9.6%
Settlement Average	\$104,291	\$21,234	\$8,629	\$4,361

Because of these cost savings, Mr. Hughes recommended that Grace extend its inventory (group) settlements to additional plaintiffs' law firms. We see why by looking at the results in Table 7, which shows Grace's average resolution costs, its average payment across all resolved claims include those closed with \$0 (in contrast to the settlement average that is calculated only among claims that received some payment). Across all of the claims that it resolved, Grace saved a great deal by resolving claims in groups rather than individually. Even though Grace was able to reject

more claims when it reviewed and resolved claims individually, its average costs across all resolved claims (whether settled with payment or rejected without payment) were greater for these individually resolved claims, far greater for mesotheliomas, the most costly claims. Conversely, Grace rejected few claims through group settlements, but overall resolved claims in groups for much less money. As Grace recognized, group settlements represented its best means for resolving its asbestos claims.

Table 7: Grace's Overall Costs by Resolution Approach, January 2000 to April 2001

Approach	Average Costs			
	Meso	Lung	OthCan	Nonmal
Group Resolution	\$55,312	\$15,883	\$10,408	\$2,954
Individual Resolution	94,460	18,820	7,728	3,943

Grace also used these group settlements to achieve controls that it could not otherwise obtain in asbestos litigation, obtaining from plaintiffs' law firms agreements to accept criteria that restricted what claims would be paid, agreements to withhold filing of unimpaired claims, and even moratorium agreements that stopped law firms from filing new Grace claims for periods of years.

Grace understood and sought the savings and other benefits that group settlements provided. In internal memos and letters to Grace's insurers, Mr. Hughes, listed some of these benefits as part of proposals for specific group settlements. Regarding a proposal to settle pending claims and create "a private administrative settlement program" for "thousands of asbestos bodily injuries in Louisiana State Courts", Mr. Hughes wrote:

"the proposed agreement inexpensively resolves unimpaired pleural claims (hopefully) removing an incentive for filing such claims" (Letter of June 24, 1997 to Thomas J. Quinn, Esq. counsel for Grace's insurer, BOCAS 0000321. Parenthesis in original.)

"future unimpaired cases would not be filed" (Memo of May 20, 1997 to R. H. Beber BOCAS 0000341)

"legal fees would be eliminated" (Ibid)

"economic incentive for mass screenings would be eliminated" (Ibid)

Mr. Hughes described the benefits on another, earlier agreement with a New York law firm which he proposed to continue:

"the agreement allows Grace to resolve cases in a high cost jurisdiction for reasonable amounts" (Letter of June 24, 1997 to Thomas J. Quinn, Esq. counsel for Grace's insurer, BOCAS 0000321)

"Grace has settled far fewer claims than was anticipated at the time of the September, 1992 agreement" (Ibid)

"the generally favorable September, 1992 agreement" (Ibid)

In discussing a group settlement proposed by a Texas law firm, Mr. Hughes noted tactical advantages to Grace by proposing even broader group settlements:

“The Firm’s proposal is motivated by their own self interest, because of their inability to obtain trial dates in these courts.... [I]t might be in Grace’s interest to use this as an opportunity to settle a large number of cases in other counties in which Grace faces a more immediate trial risk” (Memo of May 20, 1997 to R. H. Beber BOCAS 0000342)

The rejection rates that Grace might have achieved after April 2, 2001 depended upon how frequently it used each of these two alternative methods for resolving its liability, group or individual resolutions. Grace’s historic payment percentages derived from its data (Table 4) reflect a mix of both resolution strategies, resolving some claims individually and some through group settlement agreements (entries for “Resolution Approach” in Table 5). If we were to apply Grace’s historic payment percentage to the future, we would in effect assume Grace would continue after April 2, 2001 with the same mix of resolution methods as it had in the past. But Grace might have changed its strategies. The two most extreme changes, whose effects can be measured by the comparison of resolution averages in Table 7, are:

- Grace resolves every claim through group settlements, which in comparison to its historic mixed strategy, would have:
 - increased the number of claims that it resolved with payment by a little,
 - reduced the amount that it paid on average to each claimant who received payment
 - and, on balance, *reduced its overall liability*.
- Grace resolves every claim individually, which in comparison to its historic mixed strategy, would have:
 - reduced the number of claims that it closed with payment,
 - increased the amount that it paid on average to each claimant who received payment
 - and, on balance, *increased its overall liability*.

Grace’s greater or exclusive use of individual resolutions would not only have significantly increased its indemnity costs, but would also have greatly increased its defense costs, a parameter that I have not estimated here but that would have contributed greatly to Grace’s costs of resolving its asbestos claims.

In this bankruptcy case, Grace has asserted that its asbestos claims should be reviewed one-by-one, suggesting a strategy to move toward increasing use of individual rather than group resolutions, contrary to Grace’s past reliance on and recognition of its benefits from group settlements. If Grace were now to evaluate and resolve claims individually, it would somewhat reduce the percent of claims that it resolved with payment below its historic pre-petition rates, but Grace would, in turn, pay higher values to those claims it paid. Note that while Grace suggests this strategy within the bankruptcy (going toward estimation), movement toward individual resolutions would have been disastrous in tort litigation, greatly driving up both its costs for indemnity and for defense of claims. In effect, Grace proposes to evaluate asbestos claims within the bankruptcy proceedings using an approach that was impossible in practice in tort litigation.

The trial experiences of Owens Corning (OC) and Grace both show why an aggressive trial strategy, like that now asserted by Grace, is unworkable for asbestos defendants (Owens Corning Estimation Hearing testimony, October 15, 2004). After OC left the Asbestos Claims Facility consortium in 1988,¹⁴ OC began a program of aggressive defense against asbestos claims, trying

14. The Asbestos Claims Facility (ACF) was a consortium of some asbestos defendants and their insurers between 1985 and 1988. After the ACF broke up in 1988 many of its defendant members formed a second consortium, the Center for Claims Resolution that lasted until January 2001.

more law suits than any other asbestos defendant. This strategy proved to be disastrously expensive. OC suffered adverse plaintiff verdicts in 57 percent of these trials. Almost 1,400 plaintiffs received compensatory awards against OC totaling \$714 million (189 also received punitive damage awards totaling \$207) in year 2000 dollars. OC's share of compensatory verdicts to cancer plaintiffs averaged over \$1.1 million with a \$272,465 average for plaintiffs with nonmalignant disease. Across all verdicts, both those adverse and those favorable to it, OC's average was \$297,842 in compensatory damages. OC's defense costs added far more cost: during just three years, 1990-1992 OC's defense costs totaled a half billion dollars. Grace's Senior Litigation Counsel Jay Hughes looked at OC's experience and then recommended that Grace "not (attempt) an aggressive strategy of trying cases. The people who tried that were either in the death throes, Celotex or others in the late '80s, or Owens Corning proved it wasn't a viable strategy" (Jay Hughes Deposition, February 22, 2007, p. 254).

Grace tried fewer asbestos cases, but its results were just as bad as OC's. Grace's average share of compensatory verdicts among the 31 cases that plaintiffs won was \$799,769 (2001 dollars), \$1,442,920 million on average for each of the 13 plaintiffs with mesothelioma, \$353,812 on average for each of the 17 plaintiffs with asbestosis. While Grace won 59 percent of these trials, a greater percent than OC, its average outcome across all trials that it won or lost was \$330,571. Its average among all trials of nonmalignant claims, won or lost, was \$222,828, about 100 times the average cost that Grace paid to dispose of claims through settlements. While Grace's Counsel Jay Hughes continued to recommend the importance of trying some cases as part of an overall litigation defense strategy (Ibid), it is clear that an aggressive strategy now asserted by Grace in these proceedings of discovery, review and necessarily a great number of trials would prove as impossibly costly as OC's experience had been. Section 7.3 shows that because of size of compensatory damages that Grace would have to pay when it loses to plaintiffs, its estimated asbestos liability would be far greater were it to pursue its now-asserted strategy of aggressive litigation even if it were wildly successful in dismissing claims before trial.

4.3.2.2. Broad Litigation Events that Affect Grace's Payment Percent

As a second possible scenario, recent events in asbestos litigation might also have led to a reduction in the percent of nonmalignant claims that Grace would pay after April 2, 2001. In recent years, some defendants and courts have come to criticize certain doctors and medical facilities who helped recruit and provided reports for some plaintiffs who have filed law suits claiming nonmalignant asbestos diseases. Several asbestos trusts now refuse to accept medical reports provided by the criticized doctors and facilities. In addition, there have been some limited changes in substantive and procedural tort law in several jurisdictions that make it harder for some plaintiffs to recover, especially for non-malignant claims.

Indeed, we expect and have already seen changes in asbestos litigation from these events. Plaintiffs and their lawyers now avoid criticized doctors and medical facilities. Medical screening operations have largely disappeared. New law suits have dropped sharply in some states that have changed their laws to tighten venue or restrict suits for lesser injuries. New claims for nonmalignant disease have fallen sharply. But the implications of these changes are not yet fully evident. Contrary to the expectations of their sponsors, some of these changes may tend to increase rather than decrease defendants' liabilities.

The disappearance of criticized doctors and medical facilities will have mixed effects. Defendants' liabilities will decrease to the degree that we find a drop out of asbestos claimants like those in the past who provided medical documentation only from doctors or medical facilities of low credibility. However, Grace and other defendants will also find that by driving these challenged doctors out of asbestos litigation, they will now have to pay more to resolve some asbestos claims in which those doctors had or would have appeared, but which will now be

supported by medical reports from more credible sources. Asbestos claimants who relied on reports from criticized doctors suffered for that reliance. Asbestos defendants, such as Grace, have long known the identities of challenged doctors and facilities and have discounted the values of claims that rely upon documentation from these sources. To the degree that plaintiffs' lawyers respond now by substituting more credible documentation for reports from criticized doctors, they will enhance the values of claims, increasing defendants' liabilities.

Similarly, changes that have occurred in tort law in some states will have mixed effects. Legal changes in states such as Texas will curtail filing of many asbestos claims. Some of these claims may now be filed in other states, a change that we have seen in the past when laws or procedures in one state are tightened, while other claims might go away, which will have the effect of reducing asbestos defendants' liability. But these legal changes will likely have other effects that increase defendants' liabilities. For example, both lawyers who defend asbestos claims and plaintiffs' lawyers have noted that many Texas lawyers responded to tightening of Texas's laws by expanding their practice to other, high value, jurisdictions, primarily Southern California. As a result, defendants now face increased claims in California, substituting new claims in one high value jurisdiction, California, for reductions in another, Texas. We saw this same effect after earlier changes in Texas's venue law that prevented new filings in Texas among nonresidents. To make up for the loss of out-of-state claims, many Texas lawyers increased their practices in areas of Texas that had not previously had substantial asbestos litigation, increasing the number of claims filed against defendants. As another example, plaintiffs' lawyers responded to newly restricted venue rules that prevented law suits in particularly favorable courts in Southwest Illinois, by moving existing and new law suits to Delaware, another favorable jurisdiction.

Criticisms and scrutiny of medical screening practices have clearly reduced filings for nonmalignancy claims, but these changes may also be transitory. In the past, medical screenings of asbestos exposed workers have been important sources for identifying persons who file law suits and claims for asbestos-related disease. However, by the later 1990s bad medical and diagnostic practices by several private medical businesses brought disrepute on medical screening generally resulting in drastic reduction in the use of screenings to identify potential claimants and in the number of newly filed claims for nonmalignant asbestos-related diseases. The noteworthy problems at these criticized facilities do not characterize screenings as a whole. Medical screenings are important for research and the medical care to persons exposed to asbestos. Screenings were a primary tool used by Dr. Irving Selikoff and his colleagues at New York's Mt. Sinai Hospital in their seminal research on asbestos-caused diseases. Properly conducted medical screenings have been used for decades by medical clinics, government agencies, unions, and plaintiffs' lawyers to identify persons who might have asbestos-related disease so that they can receive medical care and compensation. For example, the Federal Agency for Toxic Substances and Disease Registry (ATSDR), the Montana Department of Public Health and Human Services, and W. R. Grace itself each conduct screenings for asbestos disease among persons who live or work in Libby Montana. The ATSDR, the state of Texas and other agencies are conducting screenings at other Grace vermiculite sites. Many observers of asbestos litigation, including analysts who forecast asbestos liabilities and some plaintiffs' lawyers, foresee a rebound in the use of carefully conducted screenings and the claim filings they produce, but it is still unclear whether and when they will resume.

While we expect mixed effects from the recent events in asbestos litigation, these events might have two different effects that would reduce the number of nonmalignant claims that Grace will pay. First, fewer nonmalignant claims might be filed in the future, an effect that we discuss and that contributes to our forecast of substantial declines in nonmalignant claims as compared to Grace's historical level (Section 6.2.4). Second, as a result of these criticisms of medical evidence sources and other developments in the tort litigation environment, Grace might have

come to reject a greater number of nonmalignant claims, particularly among claims pending on the petition date, an effect that we forecast by estimating a lower payment percent for nonmalignant claims.

We expect that instead of making payments in over 90 percent of resolved claims (Grace's historic payment rates), Grace would likely pay lower percentages of pending and future claims. Because these events occurred after Grace's bankruptcy petition, we cannot simply calculate how much payment rates might fall. We use three alternative sets of estimates of payment rates--*historic*, *reduced*, and *lowest* payment rate assumptions--that bound the likely range in which Grace's actual payment rates might fall.

The *historic* rates are simply Grace's payment rates during 2000 and 2001. These set an upper bound of Grace's likely liability costs for asbestos claims, but we expect that now Grace will likely reject more claims than it had historically. We discuss forecasts using Grace's *historic* payment rates in our sensitivity analyses, Section 7 of the report.

As our estimate for *lowest* payment rates, we assume that after April 2, 2001, Grace would eliminate from payment 40 percent of nonmalignant claims that it would have paid in the past and 30 percent of cancer claims that it would have paid. To derive these alternative low rates we first start with Grace's payment rates during 2000-01 (i.e., payment rates used in the high rate alternative) and then eliminate another 30 percent of cancer claims and 40 percent of nonmalignant claims that would have been paid using Grace's historic payment rates. By using these two steps of eliminating claims, we assume that Grace would make payments in only 64 to 68 percent of cancer claims and 58 percent of nonmalignant claims.

The *lowest* payment rate assumptions are conservative and likely overestimate the number of claims that Grace could resolve without payment, particularly among cancer claims (Table 8). I used these 30 and 40 percent assumptions for my recent forecasts of asbestos liabilities for Armstrong and USG. But payment rates for Armstrong and USG would fall for reasons that do not apply to Grace. Both these defendants were members of the defendant consortium the Center for Claims Resolution (CCR), whose strategy of settling claims on behalf of all CCR members had somewhat inflated payment rates among its members,¹⁵ suggesting that payment rates for Armstrong and USG would fall sharply after they left CCR. Grace was not a CCR member, would not have had a post-CCR adjustment to its payment rates, and, therefore, would not likely have seen as sharp drops in payment rates as we expect for these former CCR members.

To reflect these differences between the expected experience of Grace and CCR members USG and Armstrong, we use a third, more likely assumption, a *reduced* payment rate assumption, that assumes future payment rates for Grace half-way between the high and low payment rate assumptions.

Table 8 shows the estimated Grace forecast payment rates for the *historic*, *reduced* and *lowest* rate

15. By their mutual agreement, each CCR member would make payments for settled claims if it had been named in the claimant's law suit so long as the claimant could show exposure to products of at least one CCR member and had evidence of an asbestos-related disease. Because of this agreement, the CCR did not insist on evidence of exposure by each member named in a law suit, but rather paid a claim if CCR determined that any one of its members had liability. Even though under this CCR arrangement each member likely contributed settlements for some claims that it would have avoided paying as a stand alone defendant, CCR members recognized that their asbestos liabilities were far lower under the CCR arrangement than if they had been standing alone. This arrangement dissolved with the CCR's dissolution in January 2001. Now standing alone after the CCR's dissolution, each former member had to assess whether or not there was some likelihood that claims could show exposure to its own products, assessments that would likely reduce the percent of claims that each former CCR member now closed with payment. But these changes do not apply to Grace, who was not a CCR member.

alternatives. I do not expect that Grace's payment rates would be as great as the high alternative, which assumes continuation of historic payment rates. Because Grace had not been a member of CCR, I do not expect that payment rates would fall to the level of the low rate assumptions. These two alternatives are useful primarily in setting upper and lower bounds of what Grace's payment rates would have been had it continued in asbestos litigation. Grace's asbestos liability would likely fall somewhere between the upper-bound of liabilities using its *historic* payment rates and the lower bounds using our *lowest* payment rates, most likely at rates closest to the *reduced* payment rate assumption. Using the *reduced* payment rate assumption, we forecast that Grace would likely reject three to four times as many cancer claims as it had pre-petition, rejecting about 20 percent of cancer claims in contrast to the 3.8 percent (8 percent for mesotheliomas) that it rejected pre-petition.¹⁶ We forecast an even more dramatic change among nonmalignancy claims: that Grace would now reject 11.5 times as many nonmalignancy claims as it had pre-petition, rejecting 42.2 percent of nonmalignancy claims after April 2, 2001 compared to the 3.8 percent that Grace rejected pre-petition. Because we forecast that Grace will now receive many fewer nonmalignancy claims than it had pre-petition, this change is even more profound.

Table 8: Payment Percentage for Grace

Payment Rates	Payment Rates			
	Meso	Lung	OthCan	Nonmal
Historic	92.1%	95.3%	96.7%	96.3%
Reduced	78.3	81.0	82.2	57.8
Lowest	64.5	66.7	67.7	57.8

4.3.3. Settlement Amounts

As is the case with payment rates, we cannot directly calculate the amounts Grace would pay to settle asbestos claims after April 2, 2001. Unlike the number of claims pending against Grace at the time of its bankruptcy filings, which can be calculated (with some uncertainty) directly from the past data in Grace's database, both the *payment rates* and *average settlement amounts* are forecasts of future resolutions by Grace that cannot be determined directly by calculation from its past data. One matter about Grace's future settlement payments is clear, however: settlement values paid by Grace would have increased after April 2, 2001 just as they had increased steadily before that date. Grace acknowledged this in its 2000 Annual Report and the contemporaneous history of settlements paid by other asbestos defendants demonstrates this. This section summarizes the major reasons why the settlement amounts paid by Grace had increased prior to its bankruptcy petition and why those amounts would have continued to increase after April 2, 2001.

4.3.3.1. Grace's Historic Settlement Amounts and Trends

First, Grace's actual experience showed that its per-case payments had been increasing for many years and that this increase was particularly great in 2000 and 2001, the fifteen months preceding its bankruptcy. Table 9 shows these trends in annual payments both for Grace's average

16. These are rejection rates among claims that actually resolve as an identified disease claim. We also assume that Grace would reject another 5.8 percent of claims as having no disease and that 6.4 percent of unresolved pending claims against Grace would be abandoned by claimants.

settlements (amounts paid to claims who receive a settlement) and average resolutions (average cost to Grace for resolving all claims, both those that are paid settlements and those closed without payment). The averages in Table 9 represent Grace's several share of the full liability cost of asbestos claims, what Grace itself actually paid. Typically plaintiffs have been exposed to asbestos by many different companies and receive payments from many. Consequently, the full compensation plaintiffs receive from all defendants is greater than Grace's several share: in 2000-01 when Grace's mesothelioma settlements approached \$100,000, plaintiffs were receiving around \$2,000,000 in total from all defendants (testimony by Mr. Daniel Myers who negotiated settlements for CCR and now for other asbestos defendants. May 23, 2006 Armstrong World Industries Confirmation Hearing, A.M. Transcript, morning session pp. 25-27).

Amounts in Table 9 are adjusted for inflation to show increases in the real value of dollars beyond increases that occurred solely because of inflation in the dollar. We show these as year 2001 dollars, the year of Grace's bankruptcy petition. To understand these values in current (2007) dollars, we would need to increase by about 16 percent representing inflation between 2001 and 2007. Using current dollars, Grace had been paying about \$113,000 in 2001 to settle mesothelioma claims.

Table 9: Average Settlement Values and Resolution Costs, By Year and Disease

Settle Year	Settlement Averages				Resolution Averages			
	Meso	Lung	OthCan	Nonmal	Meso	Lung	OthCan	Nonmal
1990	\$28,498	\$24,916	\$5,736	\$4,598	\$13,804	\$11,278	\$2,677	\$2,970
1991	30,220	8,912	3,039	3,469	17,152	4,579	1,258	1,798
1992	20,510	10,709	4,267	3,237	14,603	8,159	3,148	2,431
1993	58,973	8,557	2,587	3,242	31,604	4,520	1,876	748
1994	35,436	9,998	5,288	3,356	21,262	8,088	4,917	2,273
1995	43,987	8,215	5,301	2,186	33,644	7,498	4,850	1,853
1996	27,484	9,780	5,152	2,055	23,514	9,295	5,002	1,974
1997	26,537	8,255	5,609	2,463	24,885	7,952	5,371	2,401
1998	63,774	11,892	7,371	2,961	55,406	11,232	7,104	2,844
1999	49,586	11,515	5,129	2,416	44,844	10,316	4,430	2,250
2000	90,952	17,682	9,767	3,328	81,825	16,596	9,357	3,209
2001	97,839	18,290	10,124	3,472	93,622	17,883	9,974	3,337

Notes: Averages expressed in year 2001 dollars. Settlement averages include positive payments only. Resolution averages are calculated across all resolved claims, whether or not closed with payment.

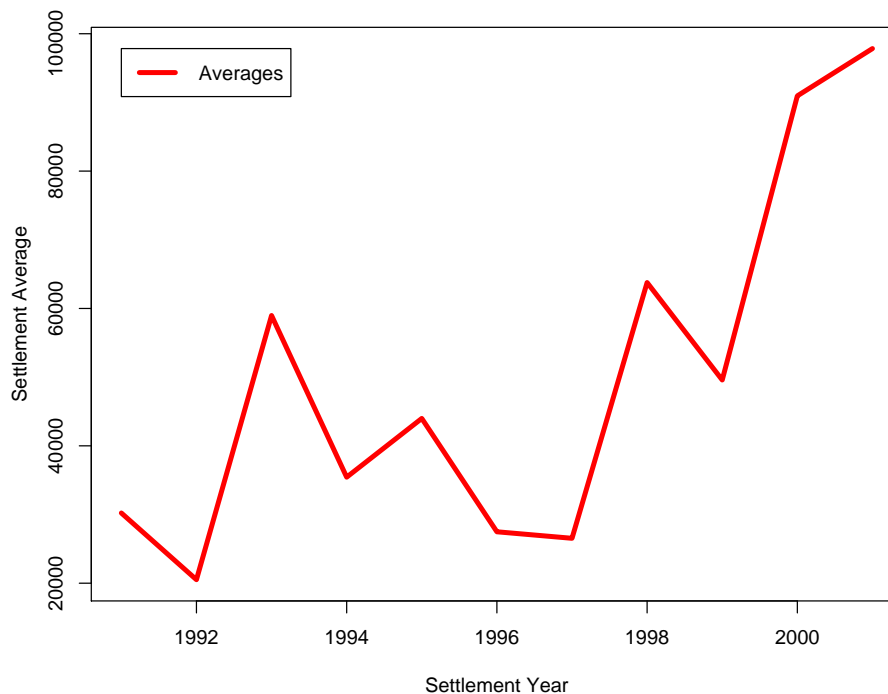
For both mesothelioma (Figure 1) and lung cancer (Figure 2), the most expensive claims, Grace's average settlements had been increasing during the 1990s, a pattern common among other major asbestos defendants. Then in 2000 and 2001 Grace's average settlements increased greatly for both diseases, doubling for mesothelioma and increasing by half for lung cancer.¹⁷

Figure 1 shows the sharply increasing trend in annual Grace's settlement amounts paid to mesothelioma claimants. Because of these increases, by the time of its bankruptcy petition,

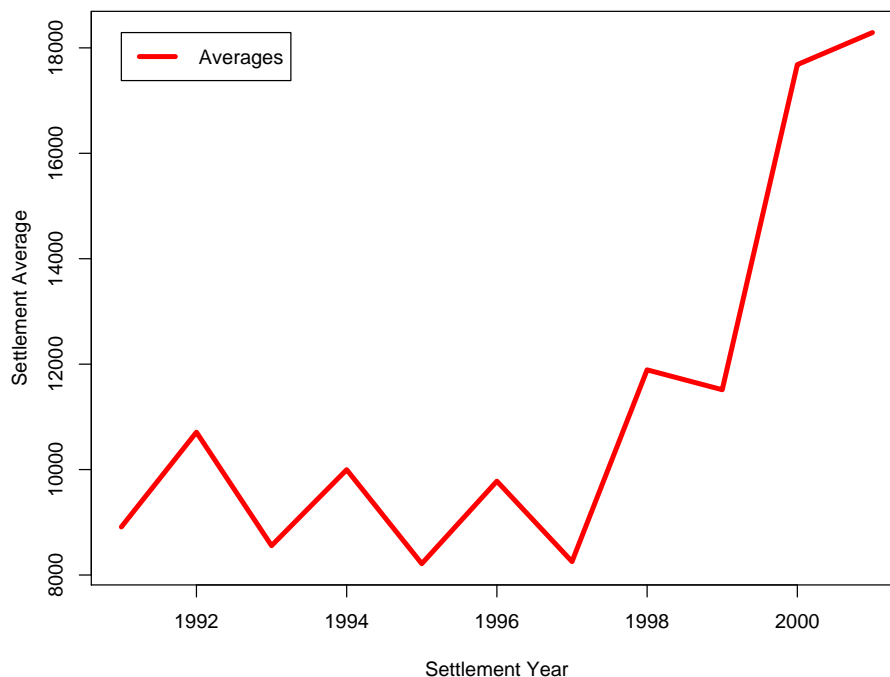
17. Grace's \$63,774 average for mesothelioma settlements in 1998 reflects its resolution of a large number of mesothelioma claims as part of a group settlements with the Baron and Budd law firm, a firm that succeeded in negotiating notably large values for its claims.

mesothelioma settlements accounted for about 34 percent of Grace's payments to asbestos claimants even though mesothelioma claims accounted for only two percent of all claims. Similarly, as Table 9 shows, Grace's settlement values for other diseases also increased through 2001.¹⁸ These trends are even clearer when we look at Grace's resolution averages calculated across all claims that Grace resolved, both with and without payments. Steadily over the decade preceding its bankruptcy, Grace had to pay more and more to resolve its asbestos liabilities. Together the long-term increases in Grace's settlement amounts and the sharp increases in 2000 and 2001 portend that the trends would have continued had Grace not filed for bankruptcy protection, as Grace itself recognized.

Figure 1: Grace Mesothelioma Settlement Values



18. Prior to 1995 Grace settled relatively few claims each year. Over the entire five year period 1990-1994 Grace settled only 27,913 asbestos and pleural disease claims. By comparison Grace settled 112,920 asbestosis and pleural disease claims settled during the five years 1996-2000, more than 22,000 claims per year.

Figure 2: Grace Lung Cancer Settlement Values

Grace's Annual Report for 2000 acknowledged these sharp increases in claim values, observing that "costs to resolve asbestos litigation were higher than expected for bodily injury and certain property damage claims" (p. 12). Significantly, Grace foresaw that these costs would continued to increase:

"These developments and events (i.e., past increases in costs to resolve claims and bankruptcy petitions by five other asbestos defendants) have caused an environment that increases the risk of more claims being filed against Grace than previously projected, with higher settlement demands and trial risks. These developments and events also raised substantial doubt whether Grace would be able to manage its asbestos liabilities over the long term under the existing state court system" (pp. 12-13, parenthetical added to summarize discussion preceding quoted statement).

As Table 9 shows, Grace's anticipation of increasing costs was confirmed already in 2001 when settlement averages again increased for every disease.

As Grace's 2000 Annual Report also described, asbestos claim filings, settlement demands, trial results and its own settlement values would all have increased after April 2, 2001 due to the bankruptcies of other asbestos defendants during 2000 and 2001. Between January 2000 and December 2001, eight so-called "top-tier" asbestos defendants with historically very large asbestos liabilities each filed for bankruptcy protection: Babcock & Wilcox (February 2000), Pittsburgh Corning (April 2000), Owens Corning and Fibreboard (October 2000), Armstrong World Industries (December 2000), GAF (January 2001), USG (June 2001) Turner & Newall and the other Federal Mogul companies (October 2001). If Grace had continued in tort litigation (which is assumed in determining its asbestos liabilities within its bankruptcy), it would have paid more in the future simply because all the other big payers had gone into bankruptcy. After these bankruptcies had removed the biggest sources for compensation of asbestos claims, plaintiffs and their lawyers demanded and received greater settlement payments from those defendants who remained in litigation. Asbestos plaintiffs and their counsel successfully demanded that the

remaining solvent defendants still in the tort system “pick up the share” of the defendants who sought bankruptcy protection. Because of these bankruptcies both claims against Grace and the amounts that it would have had to pay to resolve asbestos claims would have increased greatly.

Like Grace, other asbestos defendants described how these bankruptcy filings by other defendants increased their own asbestos liabilities. USG described in its financial statements how these bankruptcies among other asbestos defendants increased the settlement amounts that it had to pay to settle asbestos claims:

“In the first and second quarters of 2001, cash payments to resolve personal injury cases increased dramatically, primarily as a result of the bankruptcy filings of other defendants in asbestos personal injury lawsuits. As a result of these bankruptcy filings, plaintiffs substantially increased their settlement demands to the remaining defendants, including U.S. Gypsum, to replace the expected payments of the bankrupt defendants.”

Mr. Daniel Myer resolves claims on behalf of asbestos defendants and has direct knowledge of the settlement amounts paid by asbestos defendants before and since the time of Grace’s bankruptcy petition and reasons for trends in those amounts. Mr. Myer settled claims for members of the CCR as a senior claim person, continued to settle claims for some CCR members after the CCR disbanded in January 2001 and now continues to settle asbestos claims on behalf of Union Carbide, among other asbestos defendants. As Mr. Myer describes, the 2000 and 2001 bankruptcies of other asbestos defendants increased settlements among all asbestos defendants and would have increased amounts that Grace would have to pay to settle claims in two ways. First, by sharply increasing the total value of asbestos claims, particularly mesothelioma. Mr. Myer estimated that the “total gross value” of mesothelioma claims (i.e., what a plaintiff might expect to receive across all defendants) has doubled or tripled since 2000 so that the full value of such claims today is “(w)ithin the range of probably between \$5 and \$8 million” compared to a \$2 million average at the time of Grace’s bankruptcy petition. (Armstrong Confirmation Hearing testimony, May 23, 2006).¹⁹ Second, Grace (and each other remaining defendant) would assume an even greater share of this now increased liability to make up for the shares previously paid by the bankrupt defendants.

CCR’s dissolution in January 2001 added further pressure on Grace to increase settlement payments. Because it settled claims and made payments on behalf of all 20 of its members, CCR was among the largest single sources of payments to plaintiffs and the law firms that represented them. CCR settled asbestos claims in large groups, saving plaintiffs’ law firms transaction costs and generating large total payments to the firms and their clients. Again to make up for these losses when CCR dissolved, plaintiffs’ law firms looked to other major defendants, like Grace, to increase their settlement payments.

All of these specific causes of increasing settlement values--increasing verdict amounts, CCR’s dissolution, the direct and indirect effects of bankruptcies of eight other primary defendants--have been widely recognized. In the Armstrong and T&N bankruptcies attorneys and claims persons who defended asbestos law suits against those companies as well as Union Carbide, recognized and explained how the dissolution of CCR and the loss of the indemnity from now-bankrupt defendants produced increasing settlement demands and payments on other defendants. In turn, all of these specific causes are superimposed on sharp increases in plaintiffs’ trial verdicts (Table 1) and the broad increases in asbestos settlement amounts that had been occurring for years, that were increasing on April 2, 2001, showing no signs of abating, and that continued beyond April 2001. Together all of these factors caused settlement levels to increase among all asbestos

19. Mr. Myer’s testimony about increases in settlements is consistent with increases that occurred over this period in mesothelioma trial verdicts (Table 1). As verdicts go up, demands and settlements do too.

defendants who remained in asbestos litigation. We can see these increases by looking at their litigation experiences after 2000.

4.3.3.2. Recent Settlement Amounts and Trends Since Grace's Bankruptcy

We get a clear picture of what would have been the continuing trends in Grace's asbestos liabilities by looking at the contemporaneous experience of other asbestos defendants. Figure 3 and Figure 4, and Table 10 show the sharp increases in settlement values among several asbestos defendants for whom we have publicly available data and who continued in litigation to the time of and after Grace's April 2, 2001 bankruptcy petition date. The figures include trends in settlement values from 1991 through their respective bankruptcy petition dates for three former CCR members, USG, Quigley and Turner & Newall (T&N) as well as Owens Corning (OC) and Grace. The 2001 values were much higher among defendants who remained in litigation into 2001. Trends over these periods show increases in settlement values for both mesothelioma and lung cancer. Values typically increase in each succeeding year and exceptions usually have ready explanations (i.e., Owens Corning began its NSP group settlement program in 1997 which stabilized its values over the next several years; Grace's higher 1998 mesothelioma values resulted from its large group settlements with plaintiffs represented by the Baron and Budd law firm, which commanded relatively high settlement values). As Figure 3 and Figure 4 show clearly, until its bankruptcy, Grace's increasing settlement costs closely tracked the trends for other defendants and the absolute value of Grace's settlements were comparable to or greater than all of these comparable companies other than OC. By themselves these graphic comparisons suggest that Grace's settlements would have continued to increase like those of the other companies had it not entered bankruptcy in early 2001. As I have discussed in Section 4.3.3, Grace's unique circumstances are consistent with this assumption that its settlement values would have increased at least as much as those of USG, Quigley and T&N.

Among these five defendants, only Quigley continued to settle claims into 2004, when it entered bankruptcy. The continued increase in Quigley's mesothelioma settlements even after 2001 are consistent with Daniel Myer's description of growing settlement values for such claims--both suggest that Grace would have had to pay even more in recent years than it paid in 2001 to settle mesothelioma claims.

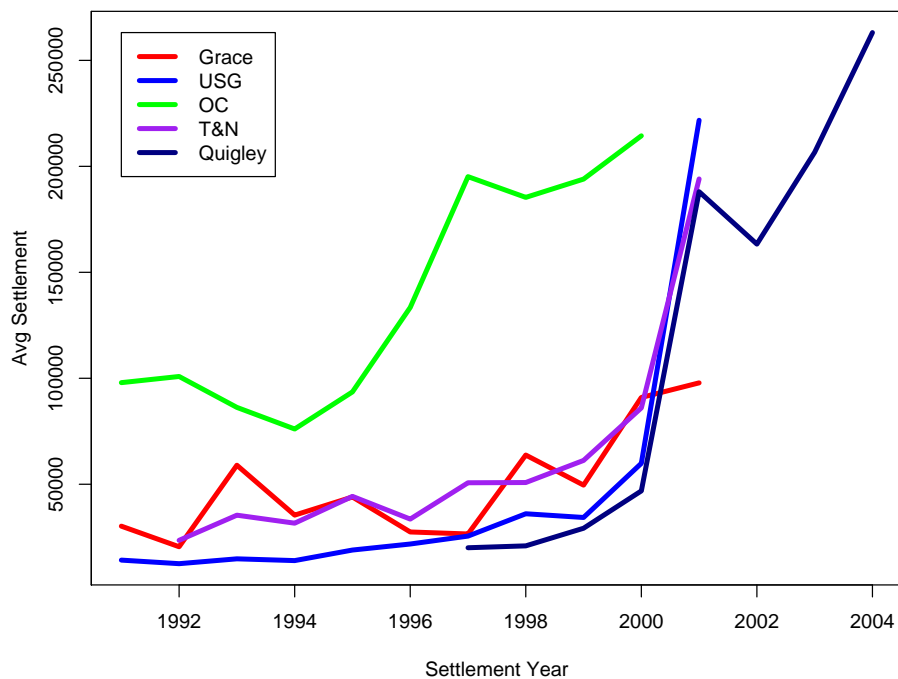
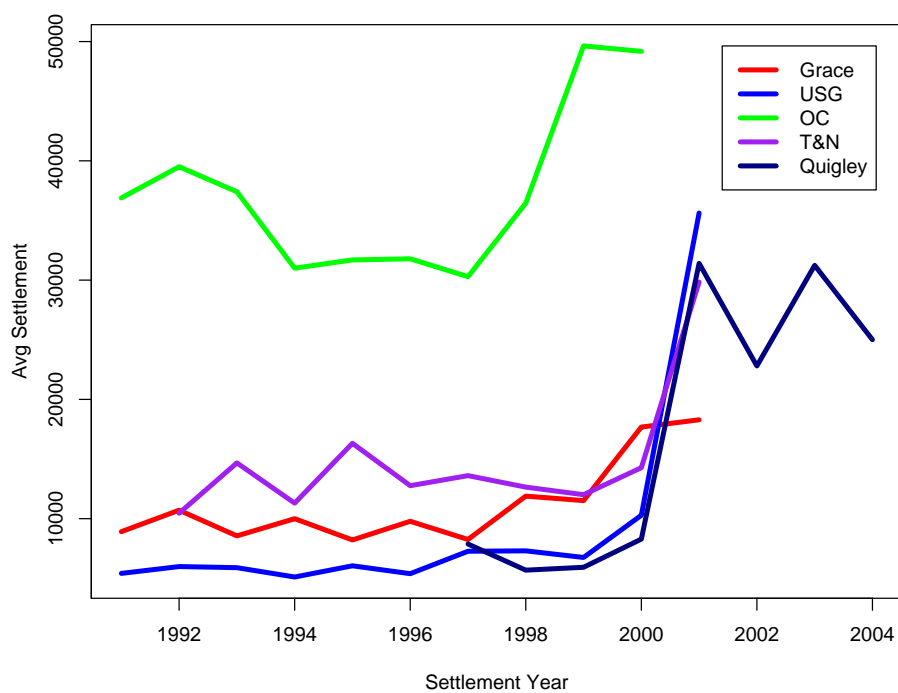
Figure 3: Trends in Mesothelioma Settlement Amounts**Figure 4: Trends in Lung Cancer Settlement Amounts**

Table 10: Trends in Settlement Averages for Grace and Other Asbestos Defendants

Year	Meso					Lung				
	Grace	USG	Quigley	OC	T&N	Grace	USG	OC	T&N	Quigley
1996	\$27,484	\$21,794		\$133,419	\$33,563	\$9,780	\$5,389	\$31,788	\$12,767	
1997	26,537	25,532	\$20,036	195,135	50,700	8,255	7,269	30,291	13,609	\$7,874
1998	63,774	36,072	20,927	185,353	50,812	11,892	7,303	36,451	12,646	5,684
1999	49,586	34,314	29,238	193,982	61,235	11,515	6,749	49,635	12,009	5,926
2000	90,952	59,856	46,857	214,403	86,022	17,682	10,286	49,179	14,274	8,288
2001	97,839	221,745	188,031		194,051	18,290	35,624		29,836	31,404
2002			163,311							22,804
2003			206,643							31,237
2004			263,118							25,006

Note: Entries in 2001 dollars.

Other publicly available information shows how asbestos liabilities increased among other defendants after 2001. Financial statements for Union Carbide show that its asbestos litigation costs steadily increased through 2004 (Table 11). Although Union Carbide's asbestos litigation costs fell during 2005 and 2006, its annual aggregate payments during those years were still three to four times higher than its aggregate costs during 2001 and the two prior years, the last years for which we have cost data for Grace. During 2002 to 2006, the five years since Grace entered bankruptcy, Union Carbide paid \$1.0 billion in indemnity costs to asbestos plaintiffs, an annual average of \$201 million, which is 515 percent of its annual average during 2001. Again, it is likely that the increase in Grace's liability during the five year period that has already passed since its bankruptcy petition would be at least this great (even though we conservatively do not forecast such sharp increases to assure that we will underestimate rather than overestimate Grace's liability).

Table 11: Union Carbide's Annual Asbestos Claims Resolution Costs

Year	Indemnity	Indemnity + Defense
1999		\$44
2000		53
2001	\$39	53
2002	155	247
2003	293	403
2004	300	386
2005	139	214
2006	117	179

Notes: Entries in millions of dollars in the year when paid. Prior to 2001, Union Carbide did not delineate indemnity and defense costs separately in its financial statements.

Beyond these matters that affected all asbestos defendants--CCR's dissolution, the direct and indirect effects of other bankruptcies, the decade-long increases in verdicts and claims values--Grace faced unique and disastrous pressures that set out Grace from among all other asbestos defendants. Prior to its bankruptcy Grace had suffered a media barrage that had been more damaging than any directed at a defendant in recent times. Rather than abating, this highly adverse publicity increased after Grace's bankruptcy petition with release of a widely shown

documentary film about its alleged poisoning and cover-up at Libby, Montana and then a 2004 release of a lengthy book that sensationally and extensively documented Grace's alleged improprieties. Grace was subject to negative local media coverage at sites throughout the country, as the EPA and other government agencies investigated and then remediated multiple sites around the country where Grace's asbestos-contaminated vermiculite had been transported, openly stored and processed. Then in 2005 Grace was indicted for knowingly endangering its workers and residents of Libby, Montana by exposing them to asbestos-contaminated vermiculite. In addition to these waves of adverse publicity, plaintiffs and their lawyers obtained road maps for pursuing large damages against Grace, from the indictment and the book. In the changed world of asbestos litigation after April 2, 2001, Grace came to stand out as the most visible and highly disparaged among all asbestos defendants. Grace would have been a prime target for plaintiffs and their lawyers looking for defendants to make up for the compensation they had lost through the spate of bankruptcies and CCR's dissolution.

We look to all of these sources to conclude that Grace would also have continued to pay larger settlements in 2001 than it had in previous years had it remained in tort litigation. But none of this tells by how much Grace's settlements would have increased after April 2, 2001. In the next three sections, I present several alternative and conservative estimates of what Grace would have had to pay to resolve its asbestos bodily injury claims.

4.3.3.3. Year 2001 Increases in Settlement Amounts

As shown in Figure 3 and Figure 4, during 2001 settlement values increased sharply among asbestos defendants. Our first set of estimates look to this experience among other asbestos defendants to forecast what Grace would have paid in average settlements had it continued in asbestos litigation. Table 12 shows the 2001 settlement averages for each disease for Turner & Newall, Quigley and USG. While there are differences between Grace and each of these defendants, T&N and USG in particular are good comparisons for Grace.²⁰ All three companies manufactured and sold asbestos-containing construction products. Both T&N and Grace were dominant manufacturers of widely-used spray insulation and each also sold a wide range of other asbestos-containing products. Like Grace, T&N also had particularly inculcating corporate documents that had been explored in a recently published book, yet both companies had maintained relatively low visibility in asbestos litigation until the late 1990s. Both of the books about T&N and Grace were substantially documented accusations, but of the two books the expose of Grace was far more damaging, discussing a broader set of alleged improprieties that continued into the most recent period. Moreover, while the T&N book addressed that company's actions that occurred mostly in the United Kingdom or Africa, the Grace book addressed Grace's actions in the United States.

20. T&N, Quigley and USG were all former members of the CCR. This former membership helped each to hold down its settlement values prior to 2001, but provides no reason to expect that 2001 settlement values would be artificially high.

Table 12: 2001 Settlement Amounts for Quigley, T&N and USG

Defendant	Settlement Amounts			
	Meso	Lung	OthCan	Nonmal
Quigley	\$188,031	\$31,404	\$11,237	\$5,231
T&N	194,051	29,836	NA	NA
USG	221,745	35,624	12,541	5,207

Note: As explained by T&N's defense counsel at the T&N estimation hearing, its settlements for other cancer and nonmalignant claims were unusual and unrepresentative "sick building syndrome" cases.

Among all four of these defendants, Grace would have seen the sharpest increase in its asbestos liabilities. In multiple ways that would exacerbate its asbestos liabilities, Grace distinguished itself from the other three defendants. Of the four, only Grace was the subject of a national television feature and a documentary film about its production, release and alleged cover-up of dangerous asbestos materials. Also, of the four, only Grace is the subject of a current criminal indictment for its alleged asbestos exposures of workers and bystanders and a cover-up of the dangers of those exposures. Only Grace became known as the source of poisoning of an entire American town. Because Grace would likely have seen the sharpest increase in settlement values among these four companies, the 2001 settlement levels for T&N, Quigley and USG provide conservative estimates about amounts that Grace would have had to pay to settle its asbestos claims.

Table 12 shows the 2001 settlement amounts for Quigley, T&N, and USG. These amounts are remarkably similar. But because they differ somewhat we separately use the settlement values for each company as a basis for three difference estimates of what Grace would pay to resolve asbestos claims: the "Quigley values" estimate assumes that by year 2006 Grace's settlements would rise to the settlement amounts paid by Quigley in 2001; the "T&N values" estimate assumes that by 2006 Grace would reach T&N's 2001 settlement amounts;²¹ the "USG values" assume that by 2006 Grace would reach USG's 2001 settlement amounts. We assume that only in 2006 would Grace's settlement values have reached the levels that the other three defendants were already paying in 2001; that Grace's settlement values during each year prior to 2006 would increase only gradually from Grace's 2001 levels. We assume further that Grace's settlement values would not increase in real terms after 2006, but would increase only at the rate of inflation.

For each of these three alternative settlement value forecasts, Table 13 shows the settlement amount that we forecast Grace would pay in each year from 2001 through 2006. For each settlement value model we start with Grace's actual settlements in 2001 and then increase those values in five steps between 2002 and 2006 so that by 2006 the forecast Grace settlement value is equal to the 2001 settlement amounts for each of the three other defendants. These three alternatives are conservative estimates of what Grace would have to pay to resolve claims for at least two reasons. First, because of its uniquely threatening litigation environment, Grace would have likely been subject to greater increase than either three of these other defendants. Second,

21. T&N's 2001 settlements for other cancers and nonmalignant claims were unusual, almost exclusively "sick building syndrome" cases filed in Mississippi that alleged "premises" liability and do not provide a reasonable basis for estimating values for those diseases for T&N or any other defendant. Because we had no relevant, direct data on T&N settlements for those diseases during 2001, we took the average of settlement amounts for Quigley and USG for those diseases.

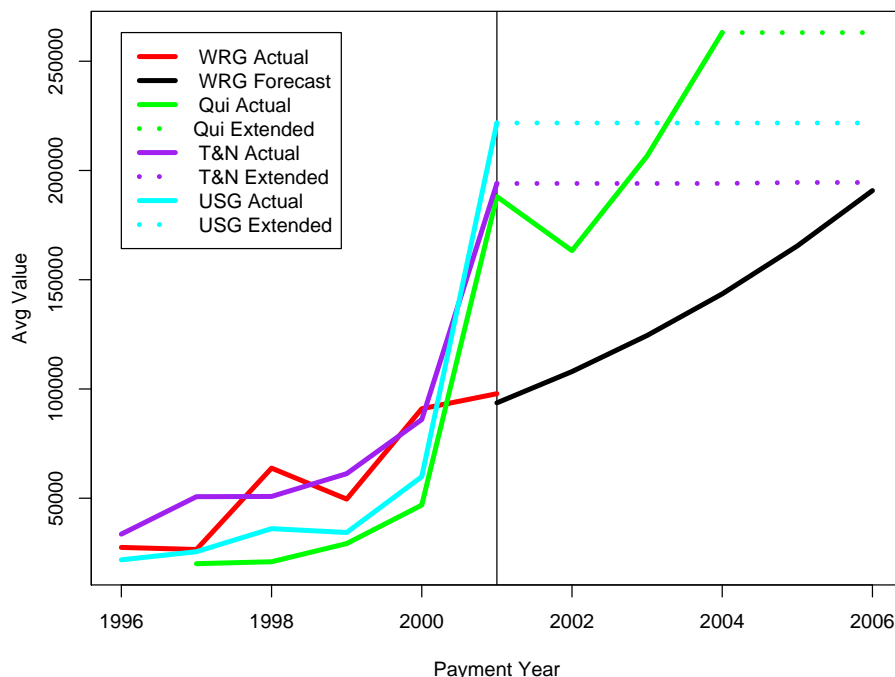
these estimates forecast that Grace would pay less in settlements during 2002 through 2005 than the other three paid during 2001, even though the litigation environment was far more threatening for Grace than for Quigley or USG or even T&N.

Table 13: Forecast Grace Settlement Values

Alternative Estimates	Disease	Settlement Amounts, by Payment Year					
		2001	2002	2003	2004	2005	2006
Quigley Comparable	Meso	\$93,640	\$107,650	\$123,757	\$142,273	\$163,560	\$188,031
	Lung	17,912	20,041	22,422	25,087	28,068	31,404
	OthCan	9,891	10,147	10,409	10,678	10,954	11,237
	Nonmal	3,372	3,682	4,019	4,388	4,791	5,231
T&N Comparable	Meso	\$93,640	\$108,331	\$125,327	\$144,989	\$167,736	\$194,051
	Lung	17,912	19,836	21,968	24,328	26,942	29,836
	OthCan	9,891	10,262	10,646	11,045	11,460	11,889
	Nonmal	3,372	3,680	4,016	4,382	4,782	5,219
USG Comparable	Meso	\$93,640	\$111,260	\$132,196	\$157,071	\$186,627	\$221,745
	Lung	17,912	20,553	23,582	27,058	31,047	35,624
	OthCan	9,891	10,372	10,876	11,405	11,960	12,541
	Nonmal	3,372	3,678	4,012	4,376	4,774	5,207

Note: T&N values for other cancer and nonmalignants were estimated by averaging values for Quigley and USG.

Figure 5 shows how conservative these three forecasts are. In each year until 2006 we forecast that Grace (solid black line) would pay less to settle mesothelioma claims than USG and T&N had paid in 2001 (dotted blue and purple lines), despite Grace's likely exposure to higher demands and pressures to pay more to settle claims. Because we have later data for Quigley, Figure 5 shows the amount that Quigley actually paid in settlements of mesothelioma claims from 2001 through 2004. In each of those years Quigley paid more to settle asbestos claims than the amounts that we forecast would have had to pay. To aid comparison Figure 5 shows dotted lines to extend out the 2001 settlement amounts for T&N and USG Quigley's 2004 settlement amounts. For Grace the Figure shows the middle of the three models, the T&N Comparable Model based on T&N's 2001 settlements.

Figure 5: Forecast Trends in Settlement Amounts

4.3.3.4. Extending Increasing Trends in Grace's Recent Settlement Values

We derived a fourth forecast of Grace's settlement values solely from Grace's own data by extending from 2001 to 2006 its past increasing trends in settlement values for each disease. For each disease we calculated the rates in increase in Grace's settlements from the 1997 to 2001 using the following formula:

$$2000-2001 \text{ average settlement} \div 1997-1999 \text{ average settlement}$$

We then projected this increase forward, forecasting that by 2006 Grace would be paying in settlements the amounts that it had paid in 2000-2001 multiplied by the rate of increase that we calculated using the formula above. This model assumes that over the 6 years 2001 to 2006 Grace's settlement values for each disease would increase by the same rates that its settlements had increased over the 4.25 year period preceding its bankruptcy. Again, we arrive at the 2006 values gradually: Over each of the five years after 2001 Grace's settlements increase (on a percentage basis) by one-fifth of the difference between its actual 2000-2001 settlement values and the amounts we forecast for 2006. This produces the steady increase between 2001 and 2006 shown in Table 14.

Table 14: Extending Grace Recent Trends

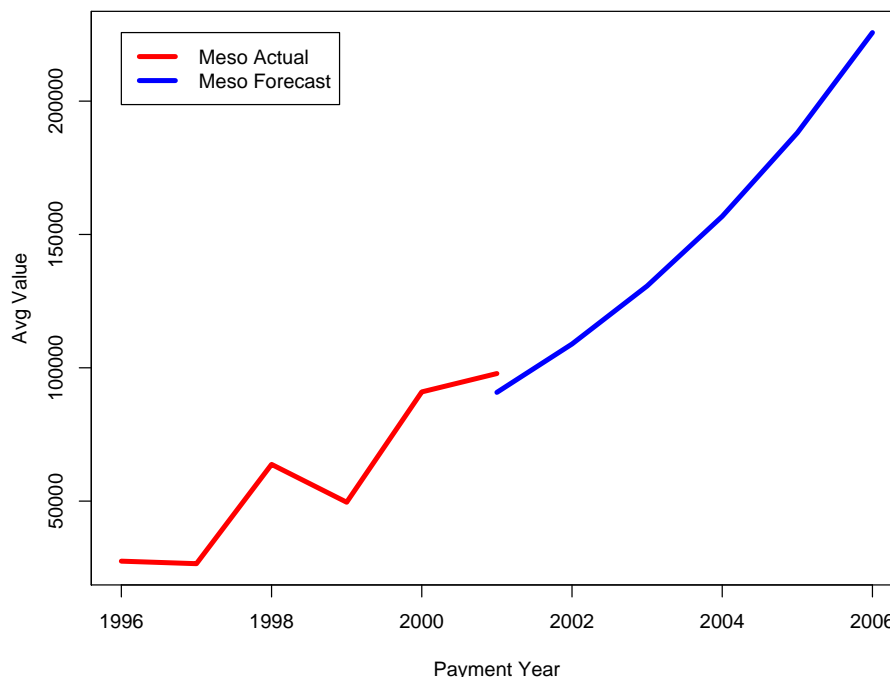
Disease	Settlement Amounts, by Payment Year					
	2001	2002	2003	2004	2005	2006
Meso	\$93,640	\$107,964	\$124,479	\$143,520	\$165,473	\$190,785
Lung	17,912	19,952	22,223	24,754	27,573	30,712
OthCan	9,891	10,784	11,758	12,821	13,979	15,242
Nonmal	3,372	3,548	3,733	3,929	4,134	4,350

By extending the increasing trends that Grace had experienced during the 4.25 years preceding its bankruptcy, we derived a model that is remarkably similar to forecasts that are based on 2001 settlements by Quigley and T&N and slightly less than forecasts based on USG's 2001 settlements.

4.3.3.5. Extending the Long-term Increasing Trends in Grace's Settlement Values

Our fifth forecast of the settlement values that Grace would pay after April 2, 2001 uses linear multiple regression analyses to determine trends in Grace's past settlement values over the longer period 1990 to 2001 and then extends these eleven-year trends over the same future period, 2001-2006. The multiple regression method offers some advantages. First, we can examine a longer period of time than our forecast based on Grace's 1997-2001 trends. Second, it provides a more robust and general analysis that is not dependent on the particular settlement values for the five specific years 1997 through 2001, but rather looks to the general rate of increase across more than a decade of Grace settlements. Third, it takes into account how settlement amounts differed across states by including filing jurisdiction as a variable in the analysis. This assured that our observed trends were not simply a result of changes in the states from which the settled claims came. Appendix B contains a brief description of the multiple regression method, as applied here.

We carried out multiple regressions separately for each disease. The results of the analysis (and the line shown for mesothelioma settlements in Figure 6) represent the best estimate of the past, increasing trends in Grace settlements taking into account and statistically adjusting for whatever differences there were from year to year in the states from which the settled claims came. We included state of filing because it is a key determinant of the settlement amounts. Settlement values for asbestos claims vary markedly among states, which is the second most important predictor of settlement values after type of disease.

Figure 6: Regression-Based Forecasts of Mesothelioma Settlement Amounts

To forecast settlement amounts that Grace would pay after April 2, 2001, we extended the multiple regression trend line from 2001 through 2006 (Figure 6 and Table 15). Like our forecasts based on Grace Recent Trends and the settlement experiences of Quigley, T&N and USG, this forecast based on Grace Long Term Trends assumes a continued year-by-year percentage increase in amounts that Grace would pay to claimants until year 2006 and then assumes no further increase other than simple monetary inflation. The multiple regression of long term trends again produced forecasts that are consistent with the four other forecasts and is again conservative. By 2006 this analysis forecasts that Grace would pay \$225,710 on average (in 2001 dollars) to each settled mesothelioma claim, an amount that is only 1.8 percent more than what USG had already paid in 2001 and 14.2 percent less than what Quigley had already paid in 2004. The analysis forecasts that in 2006 Grace would pay \$28,482 on average to settle lung cancer claims, an amount that was 20 percent less than USG had paid in 2001. Similarly the forecast that Grace would pay \$3,741 on average to settle a nonmalignant claim is 28.2 percent less than the \$5,207 that USG had paid in 2001. Not only should we expect that Grace would have to pay more to resolve its asbestos claims than Quigley or USG, given its negative publicity and the discussion and distribution of damaging Grace documents, but we should also expect that rates of increase in Grace's settlements after April 2001 would have been significantly greater than the rates of increase from 1990 to 2001 (the empirical basis for this forecast) before Grace was subjected to such intense negative publicity and distribution of damaging documents. All that the multiple regression can provide (which is the basis of this Long-Term Trend forecast), is an analysis of what has happened in the past. During most of the period analyzed by the regression analysis Grace faced neither the publicity or damaging documents that it now faces. The increasingly threatening environment that Grace faced after April 2001 likely would have greatly increased amounts that Grace would have to pay to settle claims, but neither the multiple regression analysis, nor this Long-Term Trend forecast, nor any of the forecasts in this report fully reflect this shift in Grace's liabilities.

Table 15: Extending Grace Long-Term Trends

Disease	Settlement Amounts, by Payment Year					
	2001	2002	2003	2004	2005	2006
Meso	\$90,780	\$108,918	\$130,681	\$156,793	\$188,122	\$225,710
Lung	16,819	18,688	20,764	23,071	25,634	28,482
OthCan	9,936	11,088	12,373	13,807	15,408	17,195
Nonmal	2,861	3,018	3,185	3,360	3,546	3,741

Note: The 2001 values are predictions from multiple regressions, so differ slightly from the actual 2001 values shown in Table 9.

4.3.3.6. Summary of Five Settlement Value Forecast Parameters

Table 16 summarizes our five forecasts of settlement values that Grace would have had to pay to settled pending and future asbestos claims over the first five years after its bankruptcy petition. Dollar values are rounded to and shown as the nearest thousands of dollars to simplify comparison. The table presents together each alternative forecast for the same disease (starting in 2001 with Grace's actually settlement averages for the period 2000 to April 2001).

Table 16: Grace Settlement Values Used in Alternative Forecasts

Disease	Estimation Method	Settlement Amounts, by Payment Year					
		2001	2002	2003	2004	2005	2006+
Meso	Long-Term Grace Regression	\$90,780	\$108,918	\$130,681	\$156,793	\$188,122	\$225,710
	Short-Term Grace Ratios	93,640	107,964	124,479	143,520	165,473	190,785
	Increases--Quigley Rates	93,640	107,651	123,757	142,273	163,560	188,031
	Increases--T&N Rates	93,640	108,331	125,327	144,989	167,736	194,051
	Increases--USG Rates	93,640	111,260	132,196	157,072	186,627	221,745
Lung	Long-Term Grace Regression	\$16,819	\$18,688	\$20,764	\$23,071	\$25,634	\$28,482
	Short-Term Grace Ratios	17,912	19,952	22,223	24,754	27,573	30,712
	Increases--Quigley Rates	17,912	20,041	22,422	25,087	28,068	31,404
	Increases--T&N Rates	17,912	19,836	21,968	24,328	26,942	29,836
	Increases--USG Rates	17,912	20,553	23,582	27,058	31,047	35,624
OthCan	Long-Term Grace Regression	\$9,936	\$11,088	\$12,373	\$13,807	\$15,408	\$17,195
	Short-Term Grace Ratios	9,891	10,784	11,758	12,821	13,979	15,242
	Increases--Quigley Rates	9,891	10,146	10,409	10,678	10,954	11,237
	Increases--T&N Rates	9,891	10,261	10,646	11,045	11,459	11,889
	Increases--USG Rates	9,891	10,372	10,876	11,405	11,959	12,541
Nonmal	Long-Term Grace Regression	\$2,861	\$3,018	\$3,185	\$3,360	\$3,546	\$3,741
	Short-Term Grace Ratios	3,372	3,548	3,733	3,929	4,134	4,350
	Increases--Quigley Rates	3,372	3,681	4,019	4,388	4,791	5,231
	Increases--T&N Rates	3,372	3,680	4,016	4,382	4,782	5,219
	Increases--USG Rates	3,372	3,678	4,012	4,376	4,774	5,207

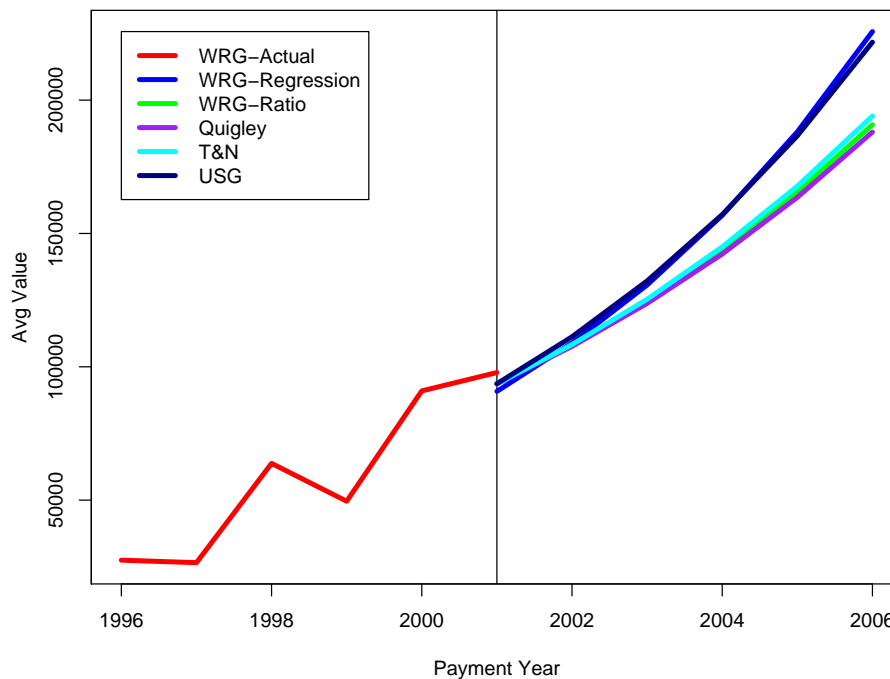
The following four figures graphically present for each disease the same forecasts shown in Table 16, the values that Grace would have had to pay in settlements over the first five years after its bankruptcy petition. Each of the figures describes historic data (in red) and our forecasts for each of the different types of diseases. In some instances two or more models are so close that the

trend line for one model lies on top of the trend line for another, obscuring one of the models. This is the reason why the figures for mesothelioma and nonmalignancies appear to present forecasts only for four and three models respectively.

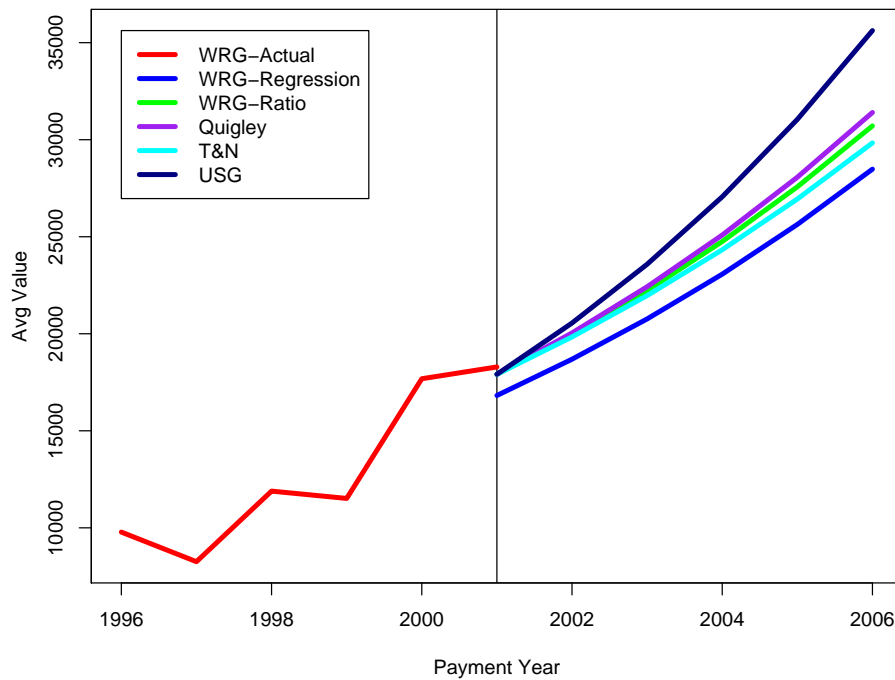
Both the table and the figures show the close correspondence among these forecasts that are based on three different methods--multiple regression, extrapolation from Grace's recent history, and comparisons to payments made by three different co-defendants--and data from four different defendants. This close correspondence provides assurance about the robustness of each of the forecasts. Whether we look at Grace's likely settlement payments using one method or another, its own historic trends or the actual recent trends of other defendants, our estimates of Grace's liability are highly similar.

The forecasts for mesothelioma, displayed in Figure 7, are most important both because mesothelioma values are so much greater than settlements for other diseases and also because mesothelioma claims have been and likely will continue to increase at rates greater than other diseases. The alternative forecast models for mesothelioma settlement values are highly similar despite being based on three different valuation methods and data from four defendants.

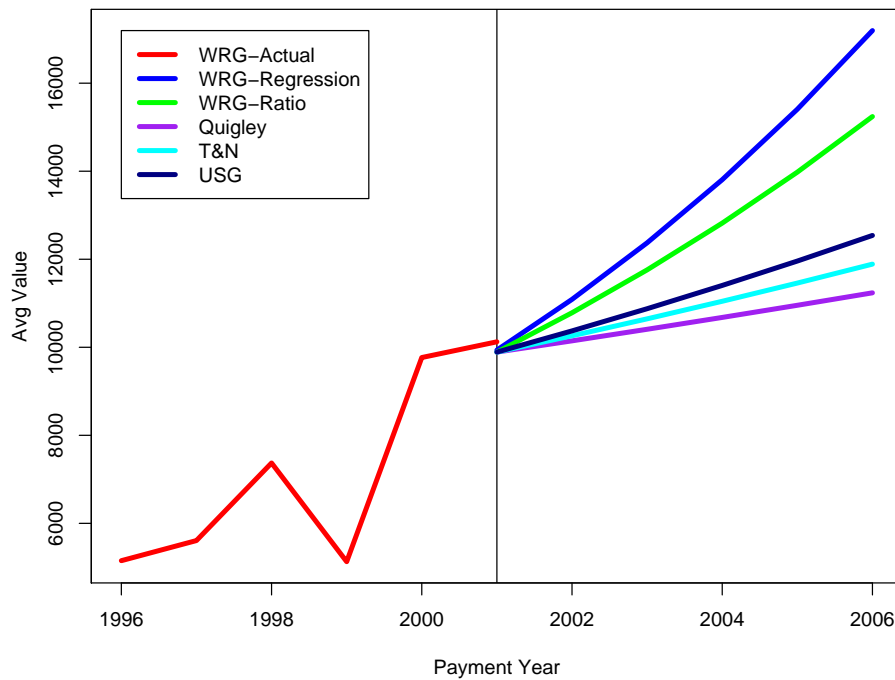
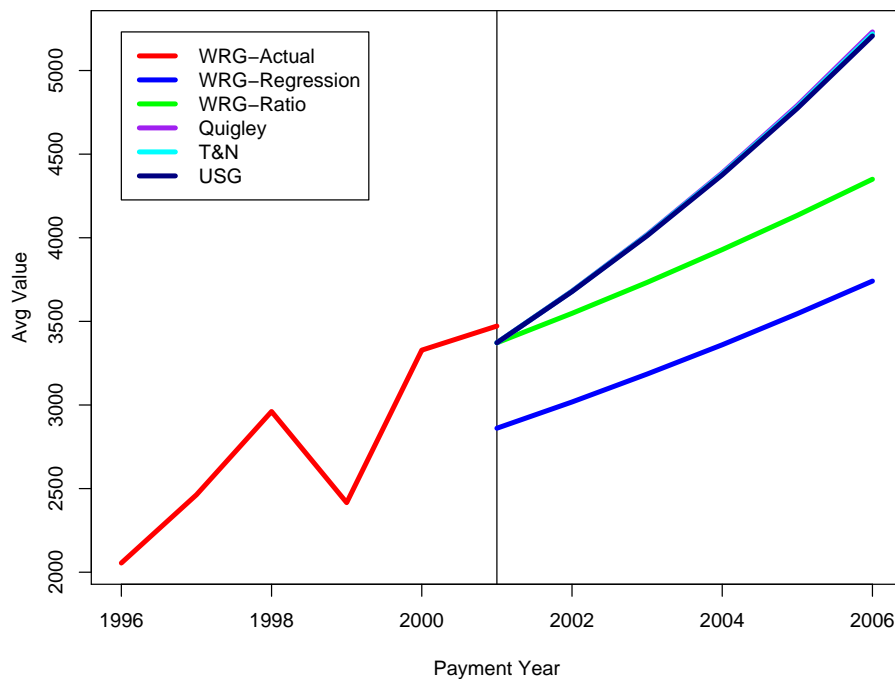
Figure 7: Projected Mesothelioma Settlement Amounts



Our forecasts of settlement values of lung cancer are similarly robust, as shown by the correspondence in values of lung cancer claims across the alternative methods and data (Figure 8).

Figure 8: Projected Lung Cancer Settlement Amounts

There is more variability across the alternatives for other cancer and nonmalignant valued forecasts. For both types of disease, forecasts based on USG and Quigley settlement values are very close--these cannot even be distinguished for nonmalignancies (T&N values are calculated as the average of the other two). When compared to the calculation based on USG's and Quigley's 2001 settlement values, the two other methods that extrapolate from Grace's past data, multiple regression and the ratio increases over recent years, produce *higher* forecasts for other cancers and *lower* forecasts for nonmalignancies. But even by the fifth forecast year, these differences are not great. (Figure 9 and Figure 10).

Figure 9: Projected Other Cancer Settlement Amounts**Figure 10: Projected Nonmalignant Settlement Amounts**

4.4. The Inseparability of Payment Rates and Settlement Values

Because of uncertainties about how often Grace would have been able to close asbestos claims without payment had it continued in litigation after April 2, 2001, our forecasts use three different

estimates of what its payment rates would have been: *historic* rates--payments in over 90 percent of resolved claims based on Grace's history (forecasts that we include in our sensitivity analyses, Section 7); *lowest* rates--payments in about 65 percent for cancers and 58 percent for nonmalignant claims; and *reduced* rates, averaging the other two estimates. The average settlement cost that Grace would have incurred would likely have differed depending upon which of these payment rates it achieved. If Grace had been able to move from paying almost all claims (the *historic* payment rate) to paying about 60 percent of claims (the *lowest* payment rate), it would have paid many fewer claims, but it would have paid more on average for the fewer claims that it did pay.

As I discussed above (Section 4.3.2), Grace might have been able to move toward lower payment rates after some courts and legislatures placed barriers to litigation of the least serious claims and after the credibility of some screening procedures and doctors came to be more vigorously questioned. While we expect that these changes would have likely reduced the claims that Grace would have had to pay by discouraging or eliminating many claims with relatively low values, this would mean that the remaining claims that Grace had to pay would be of higher quality and value than the cross section of all claims that it paid before bankruptcy (which had included weak claims that we assume Grace would now be able to avoid).

Asbestos bodily injury claims vary in many ways that are related to their values. Some claims are supported by highly credible doctors and laboratories, others by doctors or laboratories who have come to have little credibility. Defendants understand these differences and pay larger settlements for claims that are supported by highly credible doctors and less to claims whose medical documents come from doctors or laboratories of low credibility. Similarly, Grace and other defendants paid more to claimants who have strong product identification of its products (Hughes Deposition, February 22, 2007, pp. 251-254). Defendants face lower risks and will pay less in settlement to claimants who have minimal exposure evidence. Defendants pay less for claims that are brought through questionable screening practices than those arising through routine medical practices. Defendants pay more in high value jurisdictions and to plaintiffs represented by proven counsel. If, in the future, Grace can avoid paying some claims, it will be because those claims have poor exposure evidence, lack credible medical evidence, or otherwise have features that make the claims both more likely targets for summary judgment.

Grace might lower the percent of claims that it pays (its payment rates) by moving from its prepetition strategy where two-thirds of claims were resolved through large group settlements to a strategy in which it disputed, reviewed and settled claims individually. However, as I discussed in Section 4.3.2, Grace's own history shows that such a change would have been costly for Grace. Grace described the low values that it was able to obtain through its group settlement agreements as "settlement values that are extremely favorable to Grace" (Grace memo dated July 19, 2000; Bates numbers 108-2481 in Sealed Air litigation). Grace could not continue to obtain such "extremely favorable" settlements if, instead of making payments in 90 percent of resolved claims, it now moved to a strategy of challenging and requiring extensive proof before it paid claims. Quite simply, the claims that Grace paid under such a revised regime would have been those that satisfied its increased scrutiny, that had the more extensive proof that Grace required and that were demonstrably strong and valuable claims. In short, while Grace might have changed its strategies to increase the number of claims that it could avoid paying, its settlement average among the more serious set of remaining claims would have been far greater. Its own history shows this.

Moreover, this pattern holds up across defendants. Babcock and Wilcox, for example, reported that it pursued a strategy of large group settlements with payments to most claims because it allowed it to "negotiate claims at lowest values." It described its "philosophy" of litigation as a "settlement strategy of standard agreements, meeting directly with plaintiff attorneys and settling

cases in advance of trial at discounted prices.”²² Attorneys and claims persons representing Owens Corning and the Center for Claims Resolution similarly describe their respective “NSP” and “SSP” programs as obtaining discounted settlement values through group settlements negotiated with major law firms.

For short periods some defendants (including Owens Corning before its NSP program) have instead used strategies that avoided group settlements in favor of individual reviews to weed out claims. But in pursuing such strategies, they paid more on average to those claims that survived their more thorough reviews. A defendant cannot get “discounted prices” for those claims which the defendant itself has determined have no demonstrable value.

The more restrictive a defendant’s standards for review, the greater the values that are demanded and received in settlements by plaintiffs whose claims pass such strict review. Ultimately, this review is most complete and rigorous for claims that go all the way to verdict. For tried claims, Grace suffered plaintiffs’ verdicts in 41% of all cases, 65% of mesothelioma claims (Exhibit 2, Hughes deposition; Attachment 2, Snyder Expert Report and the Grace database). For these cases, average values are \$1,442,920 million for mesothelioma claims and \$353,903 for nonmalignant claims (2001 dollars).

22. B&W’s description is remarkably similar to Jay Hughes’ description of his strategies in resolving Grace’s claims. See Section 4.3.2.1.

5. Data for Asbestos Bodily Injury Claims Involving Grace

Grace maintained an electronic database for all asbestos bodily injury claims filed against it, which was sent to us in May 2002. The database consisted of several related tables. The primary claims table containing 505,608 records linked to several supplementary tables providing attorney names, alleged diseases, claim status, relationship to injured party, various dates (birth, diagnosis, filing, disposition), and disposition amounts.

Attempting to restrict our analysis to one claim for each injured person, we selected 342,974 claims that were labeled either as “plaintiff” (53,126 claims) or “co-plaintiff” cases (i.e., not a named plaintiff in a law suit, 289,848 claims). We excluded cases identified as “consortium” (159,544), “third party” (1,538) or “party in a claim” (1,552). Because Grace’s database shows that some of the selected claims appear multiple times in the database, we matched claims and eliminated duplicates, reducing the database size to 328,658 unique claimant records.

In addition to Grace’s data we use asbestos claims data from the Manville Trust to understand trends in asbestos claim filings since Grace’s April 2, 2001 petition date and to forecast claims that would have been filed against Grace since that date. We also use Manville data to impute diseases when disease is unspecified in the Grace database.

To estimate the amounts by which Grace’s settlement payments would have increased since its petition date, we use settlement data for three comparable co-defendants: USG, Quigley, and Turner & Newall (T&N).

6. Estimation of Grace's Asbestos Liability, April 2001

Grace's asbestos liability is the sum of its liability for pending claims, its liability for future claims and its costs for administering and defending those claims. I do not estimate its costs for administering and defending asbestos claims in this report, but Grace's costs would have been considerable. Typically defense and administrative costs can range from 40 percent to 100 of indemnity costs among defendants, like Grace, who process their claims independently and not as members of organizations like CCR. If after April 2001 Grace had changed from relying primarily on group settlements to an aggressive strategy of challenging and litigating claims, as it now advocates in these proceedings, Grace's defense costs would have been oppressive. While following such an aggressive strategy, OC spent about a half billion dollars on defense costs in just three years.

The following formula is the basis for estimating the total indemnity that Grace would pay to resolve these claims:

$$\text{Number of Claims} \times \text{Payment Rate} \times \text{Average Settlement Cost} = \text{Forecast Indemnity}$$

Here, counts of pending claims are drawn from Grace's databases. I forecast counts of future claims by drawing upon three sources: Grace's claims databases, epidemiological forecasts of the number of asbestos-related cancer deaths, and data for other asbestos defendants who continued to receive claims to the time of and after Grace's bankruptcy. In negotiating and settling litigation, defendants are concerned with what a claim will likely cost them: the expected resolution cost, which is a product of the probability of payment (i.e., payment rate) and average settlement cost. While asbestos claims are negotiated and resolved primarily on the basis of this unitary parameter, the potential cost of continued litigation, our forecasts separate the two parameters of payment rates and average settlements so that we can look more precisely at each component of resolution costs.

As discussed in Section 4.3.2, payment rate represents the percent of claims resolved by Grace that received payment by settlement or verdict. Average settlement costs represent the costs paid on average to claimants averaged across those who received payment (we use the term "settlement" to also include liabilities to plaintiffs who have trial judgments). Our alternative estimates of average settlement costs that Grace would have paid after its bankruptcy date are discussed in Section 4.3.3. Forecast settlement costs are derived from Grace's historic costs in resolving claims or more current costs that other similar asbestos defendants have paid since Grace entered bankruptcy. The amounts that Grace was paying in settlements at the time of its bankruptcy petition are gradually increased either at the historic rates of increase in its past settlements or at rates that by 2006 would increase Grace's forecast settlement costs to levels that have already been paid by comparable defendants in 2001, five years earlier than we forecast for Grace. We present two alternative estimates of settlement costs based on past and continuing rates of increase in Grace settlements and three other alternatives based on the increased settlement amounts paid by other asbestos defendants.

For better precision, we apply the formula above separately for each asbestos disease. For Grace (and for every asbestos defendant), settlement costs vary among different asbestos-related diseases. Table 9 above shows the average amount paid by Grace in each settled claim as well as its average resolution costs, the average paid across all resolved claims, both those settled with payments and those closed without payment (i.e., the product of the payment rate and average settlement). Grace paid far more on average to resolve mesothelioma claims than any other disease. Settlement costs differed among all other diseases. Because the mix of diseases among pending claims may differ from the mix of diseases among claims previously resolved by Grace, we cannot assume that Grace's overall historic average resolution cost among all claims will be appropriate for estimating the average value of pending claims. For example, if mesothelioma

claims represent a greater percentage of pending than resolved claims, then use of Grace's overall historic average would underestimate the company's liability for pending claims. By applying the formula above separately for claims within each disease category, we control for differences in disease distributions between pending and resolved claims.

6.1. Forecast Indemnity for Claims Pending on April 2, 2001

6.1.1. Number of Pending Claims

On April 2, 2001, when it filed for bankruptcy protection, Grace had resolved 193,468 claims but still faced 135,190 unresolved asbestos bodily injury claims. Grace reports 18,520 claims in its database that had been settled but had not been paid prior to the bankruptcy. We describe these as "liquidated" claims and use "pending claims" to describe those that had neither been resolved nor liquidated. Both together constitute Grace's unresolved claims.

Table 17 shows counts for each type of asbestos-related disease as identified in Grace's historic database among pending, liquidated, and resolved Grace claims. For resolved claims, Table 17 shows the disease identified in Grace's database. Note that for 12,399 resolved claims, no disease is identified. Almost all of these claims were resolved without payment or for very small payments, suggesting that most claims in this category *resolved-unspecified-disease* either had no asbestos-related disease or else were claims that were not pursued by plaintiffs to the point of providing documentation of disease. We do not include any of these 12,399 claims in forecasting Grace's asbestos liability; they add no value to our forecast liability. Rather, we use these 12,399 claims to reduce our liability forecast for pending claims by assuming that when Grace resolves its pending claims, 5.8 percent will turn out also to have no specific disease and will be resolved without payment, the same percentage that the 12,399 constitute among all previously resolved or liquidated claims (Section 6.1.4).

Table 17: April 2, 2001 Resolved and Unresolved Claims

Claim Status	Number of Claims					
	Meso	Lung	OthCan	Nonmal	Unspec	Total
Resolved	4,104	7,444	2,754	166,767	12,399	193,468
Total Pending	1,545	2,397	692	48,922	81,634	135,190
Liquidated	139	466	215	17,700	0	18,520
Unresolved	1,406	1,931	477	31,222	81,634	116,670
Total	5,649	9,841	3,446	215,689	94,033	328,658

Note: Nonmalignant claims include claims classified as "asbestos-related" by Grace.

6.1.2. Results of the Bankruptcy Discovery (PIQs) and Bar Dates (POCs)

During the course of these bankruptcy proceedings, the Court has authorized Grace to conduct discovery among pending asbestos bodily injury claims by submitting to each pre-petition claimant a questionnaire and request for extensive documents (collectively the PIQ form or PIQ process). The Court has also established an October 2006 bar date for pre-petition asbestos bodily injury claims that have been liquidated but not fully paid, and a November 2006 bar date for pending pre-petition claims. Claimants were required to submit proofs of claim (POCs or POC process) and PIQ forms to Rust Consulting, which serves as the Debtor's agent for the PIQ process and the Court's agent for the POC processes.

As these data have become available, we have reviewed them and expect to analyze them further when we have received completed data. I may discuss these several databases when submitting my subsequent rebuttal-supplemental report. Because of its design and implementation and our review to date, we do not expect that these data will significantly clarify or substantially reduce uncertainties about Grace's total liability for pending and future asbestos bodily injury claims. The PIQ and bar date deadlines occurred in the middle of a long period when litigation and development of these claims has been stayed, six years after the bankruptcy stay was entered, and years before the claims will be submitted to the post-confirmation trust. Evidence for claims as they are eventually reviewed for resolution by the trust may be very different from evidence now, the time that information must be submitted for the PIQ and POC processes.

The PIQ and POC forms and databases cannot provide definitive information about medical conditions among claimants for two reasons. First, because asbestos-related diseases are progressive and have long latency periods, medical conditions will deteriorate for some claimants and might deteriorate for any claimant before those claims are reviewed for allowance. Unfortunately new asbestos-related cancers will strike some pending claimants. Second, any claimant can, and many claimants will, acquire different medical evidence; even if a claim is presently unsupported by any medical evidence in the PIQ process or is supported by medical reports of doubtful credibility, this does not mean that the claim will lack credible medical documentation of an asbestos-related injury at the time the claim is reviewed for purposes of resolution.

Similarly, the PIQ and POC forms and databases cannot provide definitive information about Grace's exposures of claimants to asbestos. Because of the lengthy bankruptcy stay in this case, claimants and their lawyers have not had opportunity over the last six years to conduct discovery against Grace about specific facts that may be needed to document that Grace contributed to their asbestos exposures. Moreover, because the bankruptcy stay has interrupted Grace's payment of asbestos claims, neither claimants nor their counsel have had incentives to undertake investigations to determine additional instances of exposures created by Grace. As a result neither the PIQ nor the POC processes are suited for allowing either parties' experts or the Court to value claims participating in those processes.

We do not know whether or not the POC process will lead to disallowance of claimants who do not respond to the respective bar dates. If so, non-responding claims would have no value, but even this would not assist estimation in this case, because we will then be left with no basis for estimating the values of surviving claims that do respond to the bar dates. POC responding claims constitute an unusual and unrepresentative subset of all pending claims, those that survive a bar date, a bankruptcy process that has no counterpart in the procedures of tort litigation. We cannot use Grace's historic payment averages meaningfully to value these responding claims, which will almost certainly be more valuable than those claims that did not respond. In short, it is unlikely that either the POC or PIQ processes will be useful in valuing individual claims or in determining the aggregate value of all pending claims.

Moreover, it is critically important to recognize that PIQ and POC data on Grace's pending claims cannot be generalized to the characteristics or values of future claims. For Grace and every asbestos defendant who enters bankruptcy the set of claims pending at bankruptcy include "stale" or abandoned claims that have accumulated over time unresolved (Section 6.1.3). Many of the claims that plaintiffs or plaintiffs' lawyers have abandoned as having little or no value simply stay on a defendant's books without any resolution, increasing in number over time. In contrast, those claims that plaintiffs actively pursue are resolved over time (most with payment, but some not). As a result, the set of claims that were pending claims against Grace on its petition date is statistically biased: because valueless, abandoned claims have accumulated, this set of claims overcounts valueless claims. By themselves data on petition date pending claims do

not represent the profile of all claims that have been filed against Grace to the time of its petition and, most important, these biased data do not present a reasonable profile of claims that will be filed in the future.

The bias in pending claims data is even more serious than stated above. Claims do not settle in random order. The most valuable claims tend to be resolved more quickly. Many courts advance trial dates for exigent (serious cancer) claims. Plaintiffs' lawyers push harder to get their most valuable claims paid. Similarly, defendants attempt to resolve quickly the most dangerous claims (i.e., most costly, most valuable) before their values increase as trial dates approach. Grace's litigation attorney Jay Hughes explained how Grace settled claims selectively, targeting the most valuable for earlier resolution (Section 4.3.2). Because more dangerous, more valuable claims resolve faster, this means that, at any point in time, the profile of pending claims will appear less serious, less valuable than the profile of all claims that have been filed in the past or that will be presented in the future. That is why many experts do not attempt to estimate the characteristics, values, or liabilities of an asbestos defendant's future claims based only on the information about its pending claims.

At most, the bar date in these proceedings would demonstrate that some of the pre-petition unliquidated claims pending against Grace are claims that likely have little or no merit and would have received little or no value had Grace continued in asbestos litigation. But these observations are already clear. We do not need their demonstration through a bar date and PIQ process. We know that some valueless pending claims have been abandoned by plaintiffs' lawyers, the stale claims that I discuss in the next section. We know that other claimants will lack proof of any asbestos-related disease, like claims that Grace in the past has closed (mostly) without payment as claims with an "unknown" disease (Section 6.1.4). Litigation events over the last five years demonstrate that other nonmalignant asbestos claims will likely have little real proof of injury (and perhaps exposure), little merit, and little value. Again, we already recognize this in our forecasts of Grace's liability for asbestos claims by assuming that, in continuing litigation, Grace would now dismiss without payment a far greater number of nonmalignant claimants than it had in the past, paying nothing to 40 percent of claims that would have been paid prior to its bankruptcy petition. We assume further that Grace, in continuing litigation would pay no money to many cancer claimants who Grace would have paid in the past, between 15 and 30 percent of claims that it would have paid prior to its bankruptcy petition. In short, we anticipate that the bar date and PIQ processes in this case might eliminate some portion of pending claims, but our forecast for Grace's pending claim liability already eliminates value for these claims.

6.1.3. Adjustment for Stale Claims

As a first step for forecasting pending claims, we eliminate "stale" claims that seem to have been abandoned or withdrawn by plaintiffs but are still described as "open" in Grace's historic database. By this step, we eliminate 7,420 stale claims, 6.4 percent of all claims shown as open and unliquidated in Grace's historic database.

Figure 11 through Figure 14 show what percent of claims that were filed in various years have been closed depending upon the length of time since the claims were filed ("duration"). The figures show durations up to 11 years from filing and that, for example, within four years of filing 84.5 percent of mesothelioma claims filed in 1996-1997 were resolved (Figure 11, purple line), but that it took nine years for claims filed in 1991-1992 to have 79.4 percent resolved (Figure 11, green line). For claims filed in 1989-1990, the graphs level off, asymptoting at about 50 percent even after 11 years. Very few mesothelioma claims filed in 1989 or 1990 were being paid in recent years, suggesting that these claims are not now being actively pursued. In contrast, mesothelioma claims filed in the later filings show much steeper trends of resolution over short durations. Their curves will ultimately level off too, but the trends suggest they will level off

much higher than claims filed in earlier claims. Figure 12 to Figure 14 show similar patterns, the pre-1991 filings for each of the other diseases asymptote at levels well below the percentages of resolutions among claims filed in later years.

Figure 11: Proportion of Mesothelioma Claims Resolved, by Age of Claim

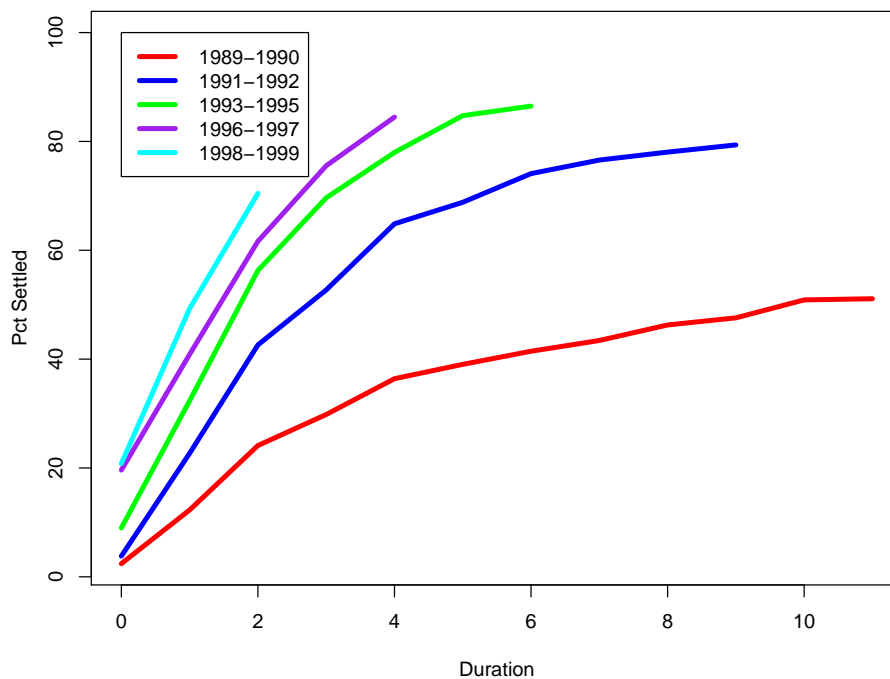


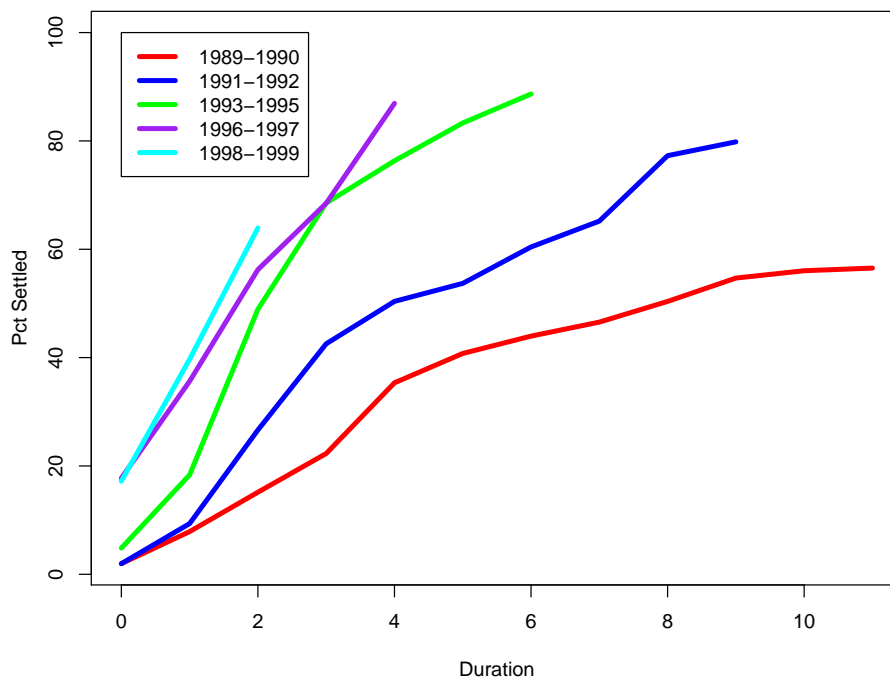
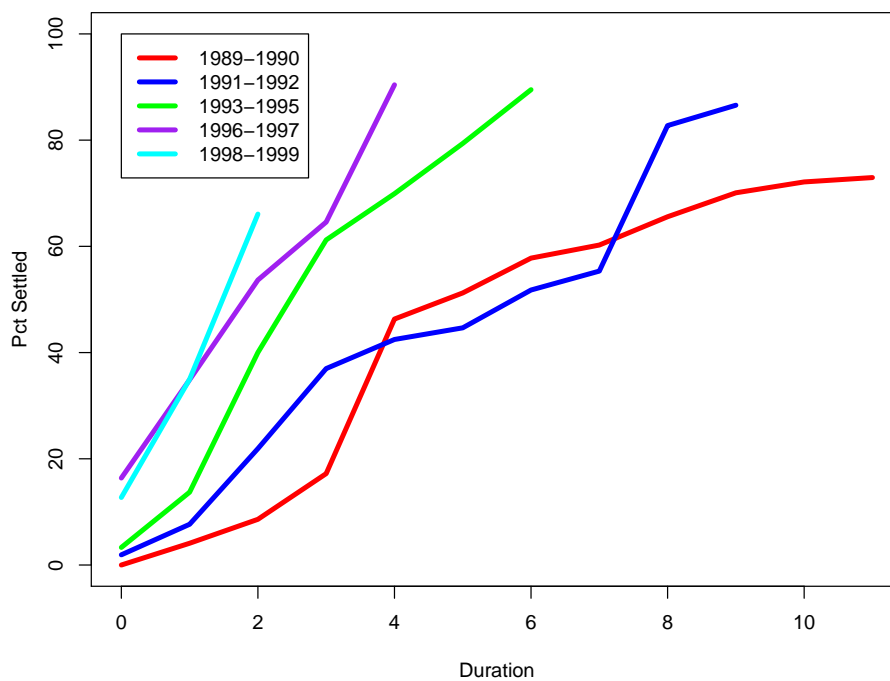
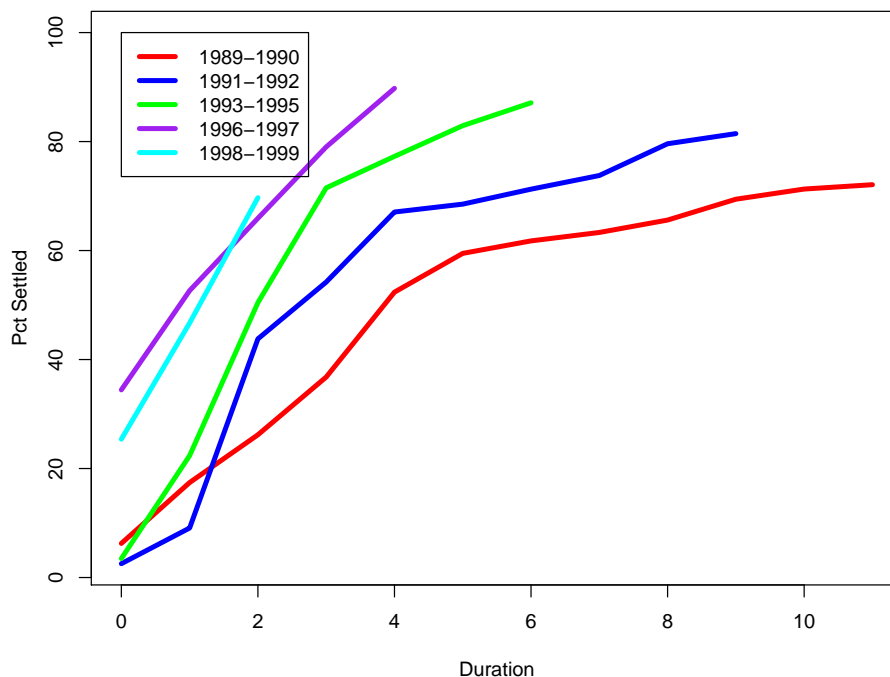
Figure 12: Proportion of Lung Cancer Claims Resolved, by Age of Claim**Figure 13:** Proportion of Other Cancer Claims Resolved, by Age of Claim

Figure 14: Proportion of Nonmalignant Claims Resolved, by Age of Claim

These analyses show that while many claims are resolved within two years of their filing, some are not reported as being closed even many years after they were filed. In several ways Grace's historic data suggest that most still-open claims filed before 1991 are likely to be abandoned or withdrawn. First, a relatively high number of these pre-1991 claims are still open 11 to 16 years after filing. According to Grace's database, between 9 and 20 percent of mesothelioma claims and 10 and 30 percent of nonmalignant claims filed from 1985 through 1988 were still unresolved at the time of its bankruptcy in 2001. Only a few mesothelioma or nonmalignant claims from this era had been resolved recently. Because it seems unlikely that more than a few of the remaining open claims filed before 1989 will ever be paid by Grace, we treat all claims from those years that are still open as stale or abandoned claims. As Figure 11 and Figure 14 show, among claims filed in 1989-1990, half the mesothelioma claims and one fourth of the nonmalignancies were still open after 11 years. In the two years before Grace's bankruptcy, only one or two percent of claims filed between 1989 and 1990 were resolved annually. At that pace most of these old, still-open claims would never be paid by Grace. Even though we expect that a few still-open claims filed during 1989 and 1990 and prior years might still be paid, we expect that most will not. We delete all of these claims from our forecast of Grace's liability for pending claims.

The pattern is different among claims filed in later years. Even though they have had fewer years to be resolved, 84 percent or more mesothelioma claims filed between 1991 and 1998 have already been resolved. Among mesothelioma claims filed between 1993 and 1996, resolutions rates already approach 90%. Resolution rates continue to increase annually and these higher resolution rates among relatively recent filings would increase even more with the passage of time. Even among the pre-1991 filed claims that we treat as stale, some claims continued to be resolved five, ten or even more years after filings: 8 percent of mesothelioma claims filed in 1988 were resolved more than 10 years after filing; 8 percent of lung cancers and 19 of other cancers filed in 1987 were resolved 10 years or more after filing. With resolution rates among claims filed after 1990 already approaching 90 percent and additional resolutions likely in the future, it appears that there will be relatively few among recently filed claims that will linger and become

stale. The patterns for other diseases are similar among other diseases. We make no adjustments for staleness among claims filed after 1990.

Based on this analysis we updated our database to identify as “stale” those unliquidated pending claims with a filing date 1990 or earlier. Table 18 shows that this reduced our total number of pending claims by 7,420.

Table 18: April 2, 2001 Description of Pending Claims

Claim Status	Number of Claims					
	Meso	Lung	OthCan	Nonmal	Unspec	Total
Stale	284	450	79	5,687	920	7,420
Liquidated	139	466	215	17,700	0	18,520
Not Liquidated	1,122	1,481	398	25,535	80,714	109,250
Total	1,545	2,397	692	48,922	81,634	135,190

Note: Nonmalignant claims include claims classified as “asbestos-related” by Grace.

6.1.4. Imputation of Disease

Next, we addressed incompleteness and possible bias in how Grace’s historic database classifies claimants’ asbestos-related disease. Based on Grace’s experience, as reported by its historic database, we eliminate another 6,329 pending claims which we assume will likely have no asbestos-related disease.

Table 17 shows that 94,033 claims in the Grace database have an “Unknown” disease, 28.6 percent of all filed claims. This is typical in claims databases that are maintained and used by asbestos defendants. In many states plaintiffs’ law suits need allege only general descriptions of disease, such as “asbestos-related disease” or “asbestos lung disease” without alleging a specific type of disease. Defendants learn about disease as claims progress over time through communications from plaintiffs’ counsel or through discovery. While Grace might update its database at the time of settlement to add a specific disease (Hughes February 22, 2007 Deposition, p. 362), its database would still classify disease as “unknown” or “unspecified” until it made such updates.

Grace’s data do show that it learned and updated the disease variable in its database during the process of reaching settlements that paid asbestos claimants. Among claims that were settled and paid by Grace, only 1 percent had “Unknown” disease in the Grace database. Similarly, none of the 18,520 liquidated and unpaid claims had an unspecified disease. In contrast, Grace often did not update disease when it resolved claims without payment. Grace resolved 12,399 claims that had no disease specified in its claims database mostly resolving resolutions without payment. Again, this is a pattern that we see repeatedly in asbestos defendants’ databases. Plaintiffs’ counsel withdraw claims or defendants reject claims before the parties have moved to discussion of alleged disease or else because the claim did not present any asbestos-related disease. Because these 12,399 claims have no information and no value we excluded these rejected- “Unknown” claims in making our Grace forecasts, essentially treating them as if they had not been filed. While Grace will likely see similar information-less claims in the future, we assume that Grace would continue to reject these claims in the future as they have in the past. Even if filed in the future, they will have no impact on Grace’s liability nor on our forecast.

However, the 80,714 pending claims with unknown disease (that are neither stale nor liquidated) must be treated differently. As Grace addresses these 80,714 claims it would learn disease for most. Therefore, we impute a distribution of diseases among these claims in order to value pending claims and forecast future claims. Analysts who forecast asbestos liabilities routinely perform imputations to fill in missing diseases and standard methods have evolved for such imputation. We used two steps, both standard imputation methods that used data from the Manville Personal Injury Settlement Trust.

First, we were able to identify diseases for many pending claims with “Unknown” disease by linking the Grace and Manville Trust databases (August 2005 extract). Each of these linked claims represents the same person who had claims against both Grace and the Manville Trust. We found that Manville had an identified disease for 38,187 of the 80,714 pending Grace claimants who had no disease specified in Grace’s database. We then used diseases that the Manville Trust had determined after its review for these 38,187 claims instead of the “Unknown” disease appearing for that claim in the Grace database. After this process, 42,527 pending Grace claims (down from 80,714) still had an “Unknown” disease.

To impute diseases for these remaining 42,527 claims, we used a second imputation step. To carry out this step we derived a transition matrix, a term of art describing a table that represents how alleged disease designations in the Grace database correspond to evaluated disease in the Manville Trust database for the same individuals based on every person whose claim can be linked in the two databases. Table 19 shows this transition matrix for 53,421 linked claims that were pending in Grace and that were evaluated by Manville. Each row shows diseases as reported in the Grace database; each column shows the disease in the Manville matrix. The table shows, for example that among the 739 mesothelioma claims in the Grace database matched to Manville (first row of table, total number at far right of the row), 682 were also categorized as mesothelioma by Manville and 18 are reported as lung cancer claims in the Manville database. As Table 19 shows, mostly there is high correspondence in the disease categorizations between the two database, but there are also a modest number of differences.²³

23. This pattern--high agreement with modest differences--occurs in every transition matrix. Differences might reflect differences in timing, e.g. Manville’s categorizations were as of 2005 but Grace’s as of 2001. Such timing differences occur because asbestos diseases progress, because some claimants develop second, more serious diseases and because documentation becomes more complete over time. Differences may also reflect who is making the categorization: for many of the claims in Grace’s database the category represents the claimants disease allegation, while for Manville we use the Trust’s determination of the disease.

Table 19: Grace - Manville Trust Transition Matrix: Numbers of Claims

Grace Disease	Manville Trust Classification					Total
	Meso	Lung	OthCan	Nonmal	Unspec	
Meso	682	18	2	33	4	739
Lung	18	791	35	77	25	946
OthCan	1	20	136	90	16	263
Asbest	24	172	66	6,904	145	7,311
Pleural	11	35	14	1,358	12	1,430
Asbrel	105	259	59	4,042	80	4,545
Unknown	748	1,529	391	34,691	828	38,187
All Claims	1,589	2,824	703	47,195	1,110	53,421

Table 20 takes the transition matrix shown in Table 19 and computes percentages within rows to show how claims in the Grace disease categories are distributed over Manville's evaluated disease categories. Among the 739 claims that Grace's data classified as mesothelioma, 92.3 percent were also classified as mesothelioma by Manville; 2.4 percent were classified as lung cancer by Manville. In using this transition matrix to impute diseases among the 42,527 Grace claims that were still unknown after the match to Manville, we still want to retain some of these claims as "unknown" in order to replicate Grace's past experience that 5.8 percent of the claims that it resolved remained with an "unknown" disease and almost all of these claims were closed without payment. To replicate this past result, we adjusted the "Unknown" row so that the overall percentage of "Unspecified" diseases among pending claims would equal the percent "Unspecified" among claims that Grace has already resolved: 5.8 percent. Setting the proportion of "Unknown" claims that become "Unspecified" to 11.7 percent achieved the 5.8 percent target, after which the remaining entries in the row were rescaled to sum to 100. Note that this adjustment is again conservative, leaving more Grace claims in the Unspecified disease category than we would see without the adjustment.²⁴

Table 20: Grace - Manville Trust Transition Matrix for Allocation of Claims

Grace Disease	Manville Trust Classification					Total
	Meso	Lung	OthCan	Nonmal	Unspec	
Meso	92.3%	2.4%	0.3%	4.5%	0.5%	100.0%
Lung	1.9	83.6	3.7	8.1	2.6	100.0
OthCan	0.4	7.6	51.7	34.2	6.1	100.0
Asbest	0.3	2.4	0.9	94.4	2.0	100.0
Pleural	0.8	2.4	1.0	95.0	0.8	100.0
Asbrel	2.3	5.7	1.3	88.9	1.8	100.0
Adjusted Unknown	1.8	3.6	0.9	82.0	11.7	100.0

24. Among the matched claims, only 2.2 percent of claims in Grace's "Unknown" disease category have an unspecified disease in the Manville data, instead of the 11.7 percent that we assume in order to match the percentages of "Unknown" claims between pending and resolved claims. This assumption reduces the number of compensable diseases in each category, as shown in Table 21.

We made a second use of this transition matrix. We assume, first, that diseases in Grace's database for pending claims primarily represent plaintiffs' allegations rather than Grace's own confirmation of disease and, second, that after further review Grace would reclassify some claims with alleged disease. We use the transition matrix in Table 20 to estimate how these alleged diseases among all pending claims will likely change to the distributions of diseases that would eventually be determined by Grace, the bases for their resolutions of those claims. Because Table 20 primarily compared plaintiffs' disease allegations (the rows are categories in Grace's database) to the diseases confirmed by the Manville Trust (the columns), the table is an example about how plaintiffs allegations differ from defendants' conclusions about disease. By using the transformation matrix in Table 20 we can estimate how defendants such as Grace would categorize diseases among pending Grace claims after review of the claims. These provide more appropriate bases for forecasting Grace's liabilities than use of disease categories that are derived primarily from plaintiffs' allegations.

Table 21: Disease Distributions After Imputation for Pending Claims and Elimination of Stale Claims

Description	Distribution of Claims					Total
	Meso	Lung	OthCan	Nonmal	None	
Number						
Resolved	4,104	7,444	2,754	166,767	12,399	193,468
Liquidated	139	466	215	17,700	0	18,520
Unresolved	2,885	5,346	1,325	93,365	6,329	109,250
Total	7,128	13,256	4,294	277,832	18,728	321,238
Percent						
Resolved	2.1%	3.8%	1.4%	86.2%	6.4%	100.0%
Liquidated	.8	2.5	1.2	95.6	.0	100.0
Unresolved	2.6	4.9	1.2	85.5	5.8	100.0
Total	2.2	4.1	1.3	86.5	5.8	100.0

Table 21 shows our estimate of the number of active, pending (and unliquidated) claims in each disease category after imputation of unspecified disease claims and use of the Manville matrix to transform allegations to confirmed disease categories. We estimate that Grace will never determine the specific diseases for 6,329 pending claims and will resolve those claims without payment. We show these claims under the "None" column to reflect that they would be rejected without determinations of disease.

6.1.5. Calculation of Indemnity for Pending Claims

In the next sections I describe our forecast for the 102,921 pending asbestos claims against Grace that have not been liquidated (there are 18,520 liquidated claims according to Grace's database), that are not claims that we assume to be inactive stale claims (7,420 claims) and that are not claims that we assume will lack an asbestos-related disease (6,329 claims). Table 22 shows these three steps for winnowing down the number of pending claims that we forecast Grace would have to consider for payment. In response to a bar date in this case approximately 38,953 claimants say they have liquidated, unpaid claims. If this is correct, we would forecast that Grace would face approximately 82,488 pending, unliquidated claims. However, following standard forecasting practices we base our forecast on Grace's historic asbestos claims database, rather than on the problematic data generated by the PIQ and POC processes in this case.

Table 22: Estimated Number of Pending, Unliquidated, Active, Asbestos-Disease Claims

Pending Claim Category	Historical Database	Expected Responses
Total Pending Claims	135,190	135,190
Liquidated Claims	-18,520	-38,953
Inactive, Stale Claims	-7,420	-7,420
No-disease Claims	-6,329	-6,329
Total	102,921	82,488

Accepting values for the 18,520 liquidated claims in the Grace database, Grace has a liability of \$62.5 million for these claims (2001 dollars).

6.1.5.1. Forecasts of Grace's Payment Rates

As I discussed in Section 4.3.2 and Section 4.3.3, we use two payment parameters to forecast how much Grace would have to pay to resolve these claims: (1) *payment rate*--the percents of claims in each disease category that Grace will resolve with payment and (2) *average settlement*--amounts that Grace would pay to claims in each disease category when it makes a payment (i.e., the average excluding claims closed without payment).

As with all asbestos defendants, Grace resolved some asbestos claims without payment, from 4 to 8 percent (varying among disease types) during 2000 and 2001. We use these past rates for one of our three alternative payment rate assumptions, *historic* payment rates. We use this alternative primarily to show what Grace's liability would be if we were to assume that its past experience would continue. However, for the reasons described in Section 4.3.2, we assume that Grace's *payment rates* would have dropped sharply and abruptly after April 2, 2001 had Grace not filed for bankruptcy protection and that much greater percentages of claims would be resolved without payment. We use two alternative estimates of how much payment rates might fall. Our *lowest* payment rate assumption follows assumptions of our liability analyses for the two former CCR members Armstrong and USG. The low payment assumption is that instead of making payments in over 90 percent of resolved claims (Grace's historic payment rates), Grace would make payments to only 64 to 68 percent of cancer claims and 58 percent of nonmalignant claims (Table 23). These forecast assumptions are taken from our earlier liability forecasts for former members of the CCR and reflect our expectations about changes in how former CCR members would review and settle claims after leaving CCR: that because of a CCR policy that members contribute to settlements in every case where named in a law suit, we would see particularly sharp drops in their payment rates after leaving CCR (Section 4.3.2). Because Grace had not been a CCR member so that its past claim filings and payment rates had not been inflated by CCR policies, we expect that it would not be able to achieve as sharp drops in its payment rates among cancer claims as we forecast for CCR members. Like our *historic* payment rate assumption, our *lowest* payment rate assumption is a lower bound estimate (particularly among future claims where we forecasts reduced filings with a drop off in poorer quality claims) rather than a forecast that we view as likely. To reflect the likely differing changes in payment rates between Grace and the former CCR members, we derived our third *reduced* payment rate assumption. This model uses rates that are midway between Grace's *historic* rates and those of our *lowest* payment rate forecast. As shown in Table 23, this assumption is that Grace would pay 78 to 82 percent of cancer claims and 58 percent of nonmalignant claims. We regard forecasts based on the *reduced* payment rates as more likely. We do not expect that Grace's liabilities would be great as those forecast using its *historic* payment rates or as low as liabilities forecast using the sharply reduced

lowest payment rates among cancer claims, but would be near liabilities forecast using our reduced payment rates. In resolving pending nonmalignant claims, we assume that Grace could achieve far more success in closing those claims without payment. Therefore, we assume for both our *reduced* and *lowest* forecast models that Grace could close 42 percent of nonmalignant claims without payment, compared to its historic experience of rejecting only 4 percent.

Table 23: Payment Percentages for Grace

Payment Rate Definition	Payment Percentages			
	Meso	Lung	OthCan	Nonmal
Historic	92.1%	95.3%	96.7%	96.3%
Reduced	78.3	81.0	82.2	57.8
Lowest	64.5	66.7	67.7	57.8

6.1.5.2. Forecasts of Grace Settlement Amounts

For all of the reasons discussed in Section 4.3 and Section 4.4 above, we forecast that Grace's *average settlement* values would have continued to increase after April 2001 as they had been increasing in the past, either at the same rates that Grace's settlement values had increased since 1997 (short-term trend) or since 1990 (regressions results for Long-Term Trend) or else at one of three slowly increasing rates that would leave Grace's settlement values in 2006 equal to amounts paid in 2001 among the three other comparable asbestos defendants: USG, Quigley, and T&N.

Each of these alternatives forecast that *average settlement* values would increase gradually over five years from 2002 through 2006. Because we forecast that Grace would have settled all pending claims between 2001 and 2003, we do not use the increased 2006 values as estimates of what Grace would pay pending claims.²⁵ Instead we use Grace's 2002 *average settlement* values for each of our five alternative value models shown in Table 13 through Table 15, values that in each alternative model are only modestly greater than Grace's settlement averages for 2000 and 2001 (Table 24).

25. We assume that one-third of pending claims would be settled and paid in each year 2001, 2002 and 2003, essentially equivalent to assuming that all pending claims would settle at the *average settlement* value for 2002.

Table 24: 2002 Settlement Values Forecast

Average Settlement	Settlement Values			
	Meso	Lung	OthCan	Nonmal
2000-2001 Average	\$93,640	\$17,912	\$9,891	\$3,372
Long Term Grace	\$108,918	\$18,688	\$11,088	\$3,018
Short Term Grace	107,964	19,952	10,784	3,548
Quigley	107,651	20,041	10,146	3,681
T&N	108,331	19,836	10,261	3,680
USG	111,260	20,553	10,372	3,678

Note: Payment amounts are expressed in 2001 dollars.

We forecast that pending mesothelioma claimants who receive settlements would be paid 15 to 19 percent more in settlement than the 2000-2001 pre-petition settlements for such claims, but that pending nonmalignant claims who receive settlements would be paid at most 9 percent more and possibly 10 percent less than nonmalignant claims that settled in 2000-2001.²⁶

In contrast to our forecast of five-year gradual increases in *average settlement* values, we forecast that Grace's *payment rates* would drop immediately and sharply in 2002 (Table 23) when it would reject without payment 3 to 6 times as many cancer claims and 11 times as many nonmalignant claims as it had before its bankruptcy.

Table 25 shows our forecasts of both settlement parameters for pending claims, *average settlements* and *payment rates* by disease, for ten combinations of two alternative payment rate assumptions and five alternative settlement average assumptions. The table also shows Grace's *historic* payment rates and settlement averages for each disease.

Table 25: Payment Parameters for Pending Claims

Payment Rates	Average Settlement	Payment Rates				2002 Payment Amount			
		Meso	Lung	OthCan	Nonmal	Meso	Lung	OthCan	Nonmal
Historic	Historic	92.1%	95.3%	96.7%	96.3%	\$93,640	\$17,912	\$9,891	\$3,372
Reduced	Long Term Grace	78.3%	81.0%	82.2%	57.8%	\$108,918	\$18,688	\$11,088	\$3,018
Reduced	Short Term Grace	78.3	81.0	82.2	57.8	107,964	19,952	10,784	3,548
Reduced	Quigley	78.3	81.0	82.2	57.8	107,651	20,041	10,146	3,681
Reduced	T&N	78.3	81.0	82.2	57.8	108,331	19,836	10,261	3,680
Reduced	USG	78.3	81.0	82.2	57.8	111,260	20,553	10,372	3,678
Lowest	Long Term Grace	64.5%	66.7%	67.7%	57.8%	\$108,918	\$18,688	\$11,088	\$3,018
Lowest	Short Term Grace	64.5	66.7	67.7	57.8	107,964	19,952	10,784	3,548
Lowest	Quigley	64.5	66.7	67.7	57.8	107,651	20,041	10,146	3,681
Lowest	T&N	64.5	66.7	67.7	57.8	108,331	19,836	10,261	3,680
Lowest	USG	64.5	66.7	67.7	57.8	111,260	20,553	10,372	3,678

Note: Payment amounts are expressed in 2001 dollars. T&N values for other cancer and nonmalignants were estimated by averaging values for Quigley and USG.

Taken together these assumptions--sharply lower payment rates and modest increase in settlement values--mean that we forecast that Grace would pay less to resolve pending claims than it had paid to resolve claims before its bankruptcy petition. Table 26 shows the size of these predicted

reductions in Grace's costs for resolving pending claims for each disease, comparing the average resolution cost (the product of multiplying the *average settlements* times *payment rates*) for each forecast with Grace's average resolution cost among claims it resolved in 2000-2001. Our *reduced payment rate* assumption means that Grace's costs for resolving pending mesothelioma claims would be about the same as it paid before bankruptcy, but that it would resolve all other pending claims for less than it had paid before bankruptcy. Our most conservative *lowest payment rate* assumption means that Grace's costs for resolving pending claims would be less than it paid before the bankruptcy for every disease and every settlement average assumption. Despite the much greater risks that Grace would have faced in its asbestos litigation after April 2002, we forecast conservatively that it would be able to resolve pending claims more successfully than it had in the past.

Table 26: Forecast Resolution Costs for Pending Claims
Are Lower than Grace's 2000-2001 Resolution Averages

Payment Rates	Average Settlement	Resolution Costs			
		Meso	Lung	OthCan	Nonmal
Historic	Actual 2000-2001	\$86,258	\$17,070	\$9,567	\$3,248
Reduced	Long Term Grace	\$85,282	\$15,138	\$9,116	\$1,744
Reduced	Short Term Grace	84,535	16,162	8,866	2,051
Reduced	Quigley	84,290	16,234	8,341	2,127
Reduced	T&N	84,822	16,068	8,436	2,127
Reduced	USG	87,116	16,648	8,527	2,126
Lowest	Long Term Grace	\$70,232	\$12,467	\$7,507	\$1,744
Lowest	Short Term Grace	69,617	13,310	7,301	2,051
Lowest	Quigley	69,416	13,369	6,869	2,127
Lowest	T&N	69,854	13,232	6,947	2,127
Lowest	USG	71,743	13,711	7,022	2,126

Note: T&N values for other cancer and nonmalignants were estimated by averaging values for Quigley and USG.

6.1.5.3. Grace's Liability for Pending Claims

We use these numbers and values to complete the formula for our forecast of Grace's liability for pending claims.

$$\text{Number of Claims} \times \text{Payment Rate} \times \text{Average Settlement Cost} = \text{Forecast Indemnity}$$

Results shown in Table 21 (Section 6.1.4, above) provide the number of pending claims within each disease category. Results shown in Table 25 (section immediately above) show the *payment rates* and *average settlements* for each forecast and each disease. For example, one of our estimates for the value of pending unliquidated mesothelioma claims, assuming the *reduced payment rate* and *long-term Grace settlement average*, is calculated as follows:

$$\text{Number of Claims} \times \text{Payment Rate} \times [\text{Settlement Value} \times \text{Inflation}] = \text{Forecast Indemnity}$$

$$2,885 \times .783 \times [\$108,918 \times 1.025] = \$252,191,882,$$

where Average Settlement Cost is the product of Grace's average settlement value times one year's inflation (assuming that pending claims would have settled on average in 2002). Table 27

shows the results of the forecasts using the alternative estimates for *average settlements* and *payment rates* (including one year's inflation for payments that will be made in 2002). As that table shows, we forecast that Grace's liability for the indemnity of claims pending at the time of its bankruptcy petition was between \$516 and \$627 million (including \$63 million in liquidated but unpaid settlements). All ten of our alternatives forecast that Grace's liability will be substantially below what its liability would have been had it continued to settle claims at its payment rates and average settlement values that obtained during 2000 and 2001, \$735 million (including liquidated claims).

Table 27: Forecast of Indemnity for Pending Claims

Claim Status	Payment Rates	Average Settlement	Forecast Indemnity				
			Meso	Lung	OthCan	Nonmal	Total
Liquidated			\$10	\$7	\$1	\$44	\$63
Unresolved	Historic	Actual 2000-2001	\$255	\$94	\$13	\$311	\$672
Unresolved	Reduced	Long Term Grace	\$252	\$83	\$12	\$167	\$515
Unresolved	Reduced	Short Term Grace	250	89	12	196	547
Unresolved	Reduced	Quigley	249	89	11	204	553
Unresolved	Reduced	T&N	251	88	11	204	554
Unresolved	Reduced	USG	258	91	12	203	564
Unresolved	Lowest	Long Term Grace	\$208	\$68	\$10	\$167	\$453
Unresolved	Lowest	Short Term Grace	206	73	10	196	485
Unresolved	Lowest	Quigley	205	73	9	204	491
Unresolved	Lowest	T&N	207	73	9	204	492
Unresolved	Lowest	USG	212	75	10	203	500

Note: Millions of 2002 dollars. Pending claims are assumed to settle in 2002 and are given one year's inflation at 2.5 percent.

This narrow range of forecasts demonstrates again the robustness of our forecasts of Grace's liability for pending claims. The ten alternative forecasts all assume that Grace would reject a much greater percentage of claims compared to its pre-petition resolutions, but use two substantially different estimates of the percent of claims that Grace would reject without payment. Within each of these two different levels of forecast payment rates, we use five alternative sets of settlement values based on three different forecasting methods and four different sets of settlement data--Grace's own historic experience and more recent experience for three other asbestos co-defendants. Across all of these different alternatives, the highest and lowest forecasts differ by only 11 percent above and below the average across all ten forecasts. Almost all of these differences arise from the two alternative payment rate assumptions. The five different assumptions about settlement values make almost no difference in our pending claims forecasts.

Figure 15 compares graphically Grace's forecast total costs among pending claims indemnity for each type of asbestos disease for reduced payment rate / long-term dollar values assumption: 63 percent of Grace's liability is for cancer claims that were pending on its petition date. For the low payment rate assumption, 59 percent of the liability is for cancer claims (Figure 16).

Figure 15: Indemnity Amounts for Pending Claims
(Reduced Payment Rates, Long-Term Dollar Values)

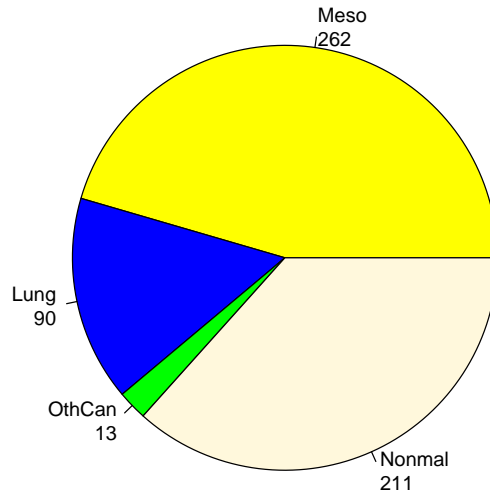
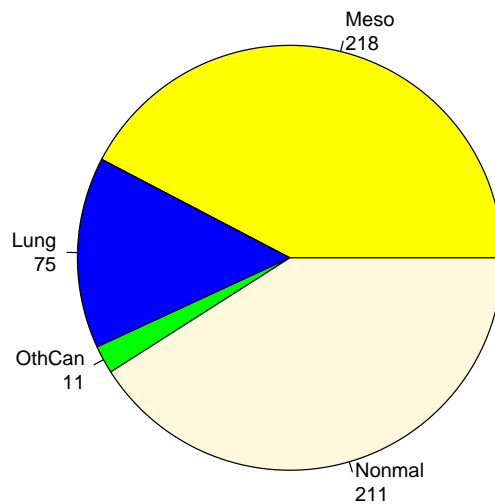
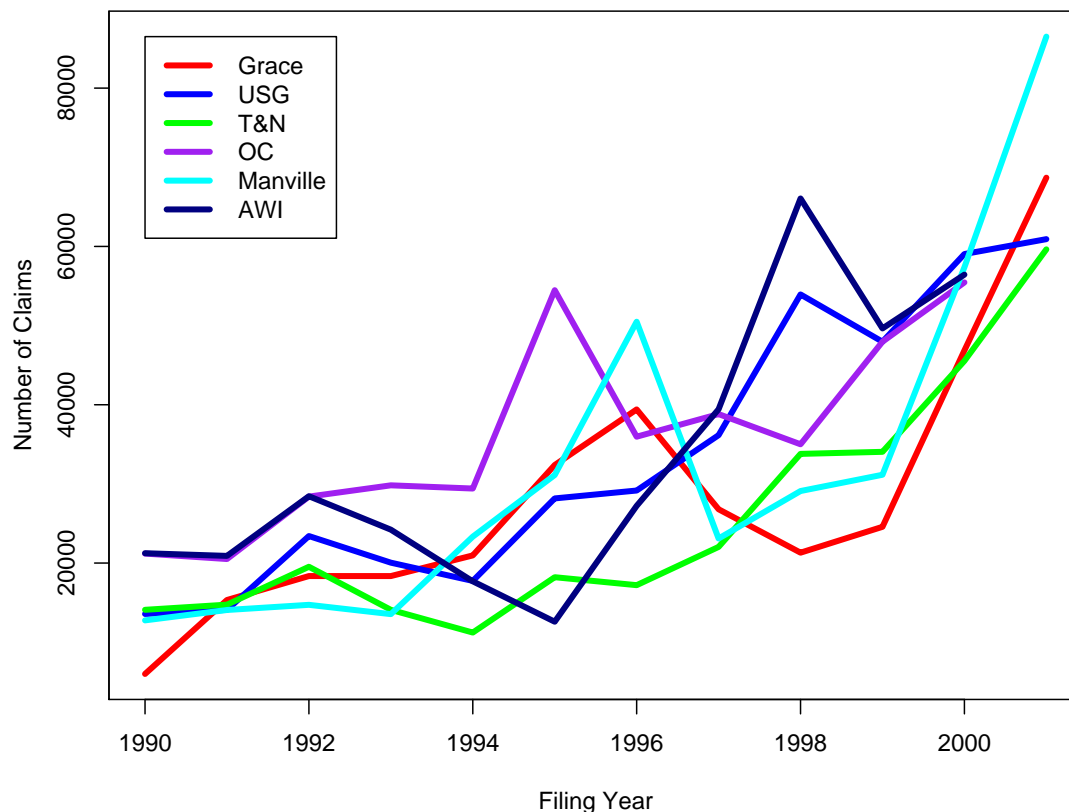


Figure 16: Indemnity Amounts for Pending Claims
(Lowest Payment Rates, Long-Term Dollar Values)



6.2. Projections of Number And Timing of Future Claims

Like other major asbestos defendants, Grace saw substantial increases in asbestos claim filings over the twelve years leading up to its bankruptcy, 1990-2001 (Figure 17). By the beginning of this decade asbestos defendants faced extraordinarily increased burdens--increasing claim filings, increasing settlement values (Section 4.3.2), and prospects of greater future increases in both--which led to bankruptcy filings for each defendant shown in Figure 17 and more than a dozen others who have filed since 2000 (Manville filed in 1982; but these litigation pressures affected the Manville Trust as well which led to its tightened claims allowance processes and the lower payment percentage that it adopted in 2002). Grace's claim filings reached their highest level in 2000 at 46,861 claims; its 33,653 claims in the first quarter of 2001 would annualize to 134,612 claims if filings continued at the first quarter rate for the rest of the year (we conservatively estimate instead that annualized claims filings for all of 2001 would be 68,683, using Grace's average claims filing rates between January 1999 and March 2001). This pattern was not unique to Grace. The Manville Trust received about 85,000 claims in 2001 and USG, which like Grace was a manufacturer of asbestos-containing building products, received claims in 2001 at an annualized rate of about 60,000 before it entered bankruptcy in June. The experiences of all of these companies are particularly relevant to Grace, because asbestos liabilities for each company arose primarily from manufacturing of asbestos-containing construction or insulation products or, like Grace, both types. Manville and T&N were also like Grace in having highly unfavorable asbestos-related corporate histories.

Figure 17: Claim Filings for Major Asbestos Defendants, 1990-2001

Note: Grace's 2001 entry based on annualizing filings. The USG and OC entries are annualized for bankruptcy year.

In this section I consider how Grace's increasing claim filing trends would have continued into the future, presenting our forecasts of future claims that would be filed after Grace's bankruptcy petition date. We forecast Grace's future claims using the standard "Nicholson" forecasting method. In making these forecasts, we look to the effects of recent changes in the litigation environment which cause us to adjust and reduce our forecast of the number of future nonmalignancy claims that would be filed against Grace (Section 6.2.4).

The number, timing and types of future claims against Grace will depend both upon the number of people in each future year who develop diseases that are asbestos-related (the incidence of diseases) and also the fraction of those people who will pursue claims against Grace (its "propensities to sue").

This section describes how the historic propensities to sue Grace for cancer are calculated and used to forecast future cancer claims. Inputs to these calculations are (1) epidemiological models of the incidence of asbestos-related cancer deaths, and (2) historic data on the number of cancer claims filed against Grace and (3) data on cancer claims filings against other defendants both before and since Grace's petition date.

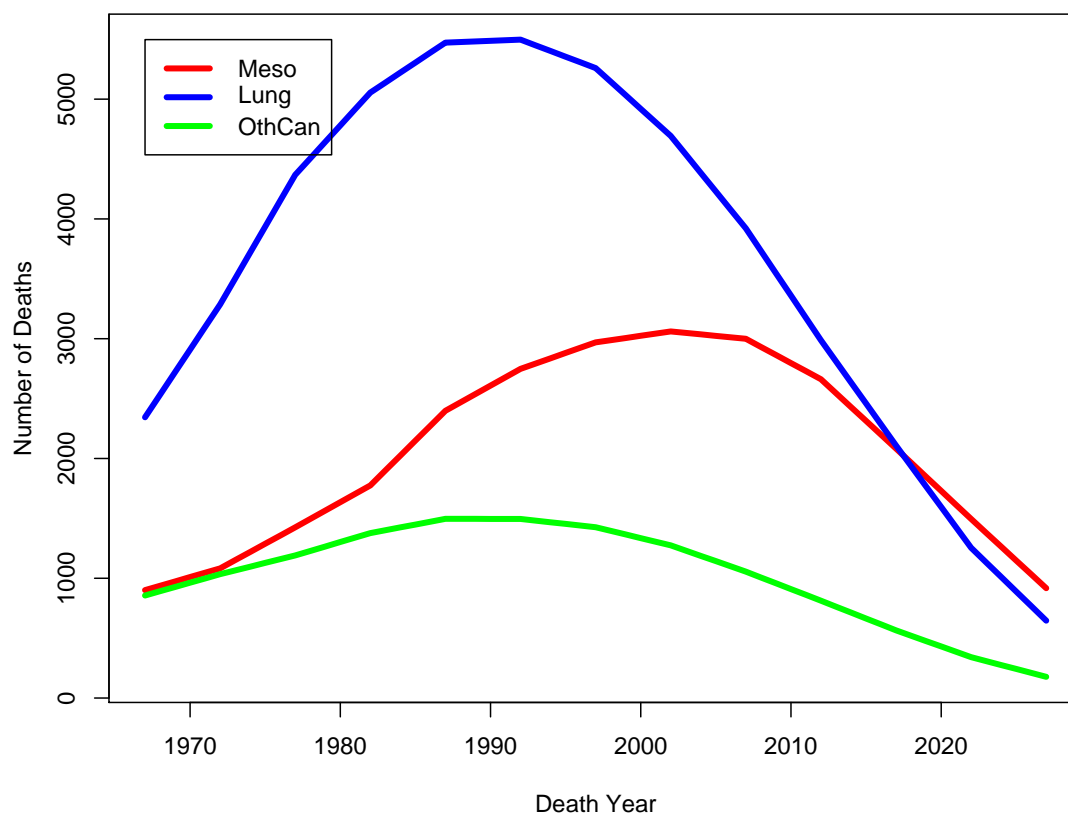
6.2.1. The Incidence of Asbestos-Related Cancers

Medical research by epidemiologists provides projections of the incidence of asbestos-related cancers. Projections differ somewhat among epidemiologists, but most agree on the relative

changes in cancer deaths over time--increasing until late in the twentieth century followed by a slow decrease in the following years. Because of this general agreement on changes over time, projections of future claims will be generally similar even when based on differing projections of incidence.

Figure 18 shows epidemiological projections of the annual number of asbestos-caused deaths between 1967 and 2027 from each of three asbestos-related cancers--mesothelioma, lung cancer and other (primarily gastro- intestinal) cancers--among workers exposed before 1980 in major asbestos-using industries.²⁷ The figure represents the results of work by Nicholson, Perkel and Selikoff (1982) which is generally recognized as the most comprehensive and reliable forecast of asbestos-related cancer deaths (Appendix Table C1). The peak year of forecast deaths differs among the three types of cancers because the latency periods, i.e., the time from first asbestos exposure to the occurrences of cancer, differ among the three diseases. Because the latency period is longest for mesothelioma, the risk of that disease increases for a longer period and the incidence of mesothelioma peaks later than for other asbestos-related cancers. The patterns of asbestos diseases among exposed workers and, therefore, the patterns of legal claims, have been changing over time with these changes in the relative incidences of each type of cancer. In past years lung cancer has been the most frequent cancer among occupationally exposed workers and the most frequently claimed cancer. However, now and in each future year approximately the same number of workers will suffer mesothelioma and lung cancer.

27. Forecasts for lung and other cancers are excess deaths, i.e., the number of additional deaths that will occur because of asbestos exposures that are in addition to cancer deaths that would otherwise have occurred without asbestos exposure. Asbestos exposure is the only known cause of mesothelioma.

Figure 18: Nicholson Cancer Projections

6.2.2. Accuracy of Epidemiological Projections

Epidemiologists' projections, like those of Nicholson, et. al., have their own uncertainties, but can be tested by comparing projections for past years with data on mesothelioma deaths in those same years collected by the National Cancer Institute's SEER (Surveillance, Epidemiology and End Results) cancer registry. The SEER program collects comprehensive data on the incidence, treatment and end results (including deaths) for all types of cancers at seventeen different sites in the United States. SEER generates cancer rates from these sites that can then be used to estimate the incidence of each type of cancer for the United States as a whole. The SEER program is highly sophisticated and recognized as the state of the art for such programs throughout the world and its results are widely used in medical research and planning.

Because SEER collects data continually, its counts provide estimates of the annual national incidence of each type of cancer over many years. SEER's annual estimates of the national incidence of mesothelioma provide the means to test epidemiological forecasts of mesothelioma deaths. Asbestos is the only known cause of mesothelioma and so epidemiologists' forecasts of asbestos-related mesothelioma deaths should tend to correspond to the annual SEER national incidence counts for all mesothelioma deaths. While the SEER national incidence measures are themselves estimates based on the sample of SEER sites that have their own uncertainties, over many years an accurate epidemiological forecast of mesothelioma deaths should track trends in the SEER estimates of actual mesothelioma deaths.

SEER collects its data from a limited number of major sites around the country (e.g. two sites are Los Angeles-Long Beach and the entire state of Iowa). It is impossible to make a random selection of such sites, but SEER has attempted to select a cross section of sites that will closely

mimic key demographic characteristics of the U.S. as a whole. In recent years the SEER program has expanded its number of sites both to provide more data and better matches to the country as a whole. SEER's counts of sites went from 9 before 1992, to 13 between 1992 and 1999, and now 17 sites since 2000.

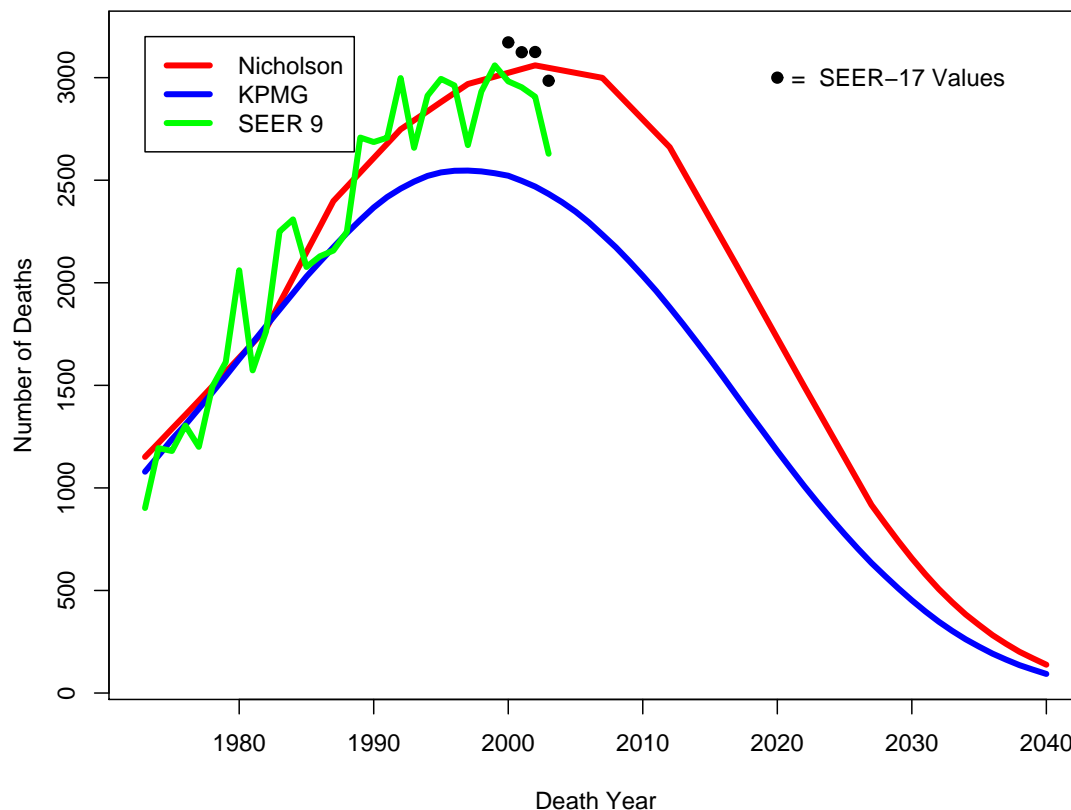
Estimates of the national incidence of cancers are enhanced because SEER provides rates of cancer broken down by key demographic variables so that national estimates can take into account differences in rates by age and other characteristics. These age rates are particularly important for estimating national incidences of mesothelioma and other diseases whose incidence is strongly related to age.

SEER's counts of 2000 to 2003 national mesothelioma deaths based on its most comprehensive 17 sites are remarkable close to Nicholson's forecasts of mesothelioma incidence (Table 28). Nicholson forecast 12,173 mesothelioma deaths for this four year period, within 233 of the SEER national counts of 12,406 mesothelioma for those years. This is less than a 2 percent difference. This correspondence supports the conclusion that Nicholson's forecasts, made almost 25 years ago, remain remarkably accurate even today.

Table 28: Comparison of Nicholson Projections with SEER-17 Site Estimates of Mesothelioma Incidence

Death Year	Nicholson Projections	SEER-17 Estimates
2000	3,024	3,172
2001	3,042	3,124
2002	3,060	3,125
2003	3,048	2,985
Total	12,173	12,406

Figure 19: Epidemiological Projections Confirmed by SEER's Mesothelioma Counts



While SEER's 9-sites provide a somewhat less comprehensive view of national cancer rates than its 17-sites, the availability of 31 years of data from these 9 sites provides an opportunity to compare the long-term correspondence between Nicholson's forecasts and the SEER data. Nicholson and his colleagues published their forecasts in 1982. Since then and through the most recent years of data, the Nicholson forecasts closely track the 9-site SEER estimates of annual mesothelioma deaths. SEER's 31-year trends are shown in Figure 19 and, as Figure 19 shows, the Nicholson et. al. forecasts correspond remarkably well to SEER's 9-site estimates of actual mesothelioma deaths up through 2000, where Nicholson is higher by only 1.4%.

Subsequently, the 9-site numbers dip considerably, but data from SEER's 17-sites show that there continues to be close correspondence between Nicholson and SEER after 2000 despite divergence between Nicholson's forecast and the 9-site SEER estimates. The difference between the 17-site and 9-site SEER estimates suggest that differences in the two SEER curves may be due to uncertainties in estimating national incidence data from SEER.

Because lung cancer and the other asbestos-related cancers have causes other than asbestos exposure, the SEER estimates of those cancer deaths will exceed and cannot be used to test the epidemiological forecasts for those other cancers. But because Nicholson's forecasts for all types of cancers are based on the same methods and the same estimates of the number of exposed workers and the extent of their asbestos exposures, the strong confirmation of Nicholson's forecast for mesothelioma provides confidence for Nicholson's epidemiological forecasts for each type of cancer.

Figure 19 also shows a second forecast of asbestos-related mesothelioma deaths made by analysts at KPMG-Peat Marwick in 1992 as part of their work as experts in the bankruptcy proceedings of

National Gypsum. Dr. Tom Vasquez and his colleagues at KPMG-Peat Marwick attempted to update the 1982 forecasts made by Nicholson, et. al., using more recent U.S. Labor Department statistics on the populations of workers in asbestos exposed industries, more recently formulated medical models of the risk of mesothelioma and lung cancer from asbestos exposure and several alternative assumptions (KPMG's annual forecasts are reproduced in Appendix Table C2). As Figure 19 illustrates, the shape of KPMG forecasts (i.e., their trends) are very similar to those made by Nicholson et. al. a decade previously and, as a result, claims forecasts that are based on the two alternative epidemiological forecasts are only slightly different.

The close correspondence between KPMG and SEER before the 1990s is not a validation of the KPMG forecast. KPMG derived its revised forecasts in part by fitting the forecasts to the SEER data through the 1980s. The curves correspond not because KPMG was forecasting mesothelioma incidence before the 1990s but because the KPMG estimates were made to fit to SEER's estimates by the KPMG researchers. Figure 19 shows that over the subsequent eight-year time period 1993 to 2000 the original Nicholson projections more closely fit the SEER data on actual mesothelioma deaths than do the KPMG forecasts. Since 2000, estimates of national mesothelioma incidence derived from the 9-site SEER fall between the Nicholson and KPMG forecasts, but national estimates derived from the SEER-17 sites more closely validate the Nicholson than the KPMG forecasts.

6.2.3. Propensities to Sue Grace

Data and forecasts of the incidence of asbestos-related diseases describe the potential for liability against Grace. As long as asbestos-related cancers occur, it is likely that some claims will be filed. We compare Grace's data on past claim filings to Nicholson's incidence forecasts for past years to see how much of this potential for asbestos cancer claims was directed against the company in the past: Among all the potential asbestos-related cancer claims in the U.S. what fraction resulted in Grace claims? We formalize these comparisons through our propensity to sue calculations shown in the next paragraph. Grace's claims data also show trends in claiming against the company, whether the propensities to sue had increased, decreased or stabilized in recent years. The historic levels and trends in propensities to sue document the past behavior by claimants and plaintiffs' lawyers in pursuing possible claims for asbestos-related cancers.

We look to this past history of claiming against Grace--past propensities to sue and trends in the propensities to sue--as well as information about claiming against other asbestos defendants to forecast future claiming against Grace. We forecast the number of claims for each type of cancer in each future year by multiplying the number of deaths projected by Nicholson for that year times our forecast of the propensity to sue for that cancer in that year. The calculations that are used first to derive propensities to sue and second to forecast future claims based on these propensities to sue are stated below.

Calculation of Propensity to Sue:

$$\text{Number of Claims} \div \text{Incidence} = \text{Propensity to Sue}$$

Forecasting Future Claims from Propensity to Sue:

$$\text{Propensity to Sue} \times \text{Incidence in Future Year} = \text{Projected Claims in Future Year}$$

We base our forecast of future propensities to sue Grace primarily on the number of cancer claims filed in the past against Grace and its trends in past annual filings. Table 29 shows the annual

number of asbestos bodily injury claims filed against Grace for each type of asbestos-related disease after the imputation of unspecified disease claims, as described in Section 6.1.4. Claim filings against Grace continued at high levels until Grace filed for bankruptcy protection in April 2001. It received over 33,000 claims in the first quarter of 2001. The 2001 filings during one quarter cannot be compared meaningfully to the annual filings for prior years. To permit meaningful comparisons, Table 29 also shows annualized filings for 2001, using Grace's claim filings during 1999 through March 2001 to fill in the last three quarters of 2001 filings. Overall, Grace saw a sharp increase in annual claim filings over the decade of the 1990s. This trend too was shared with other major asbestos defendants.

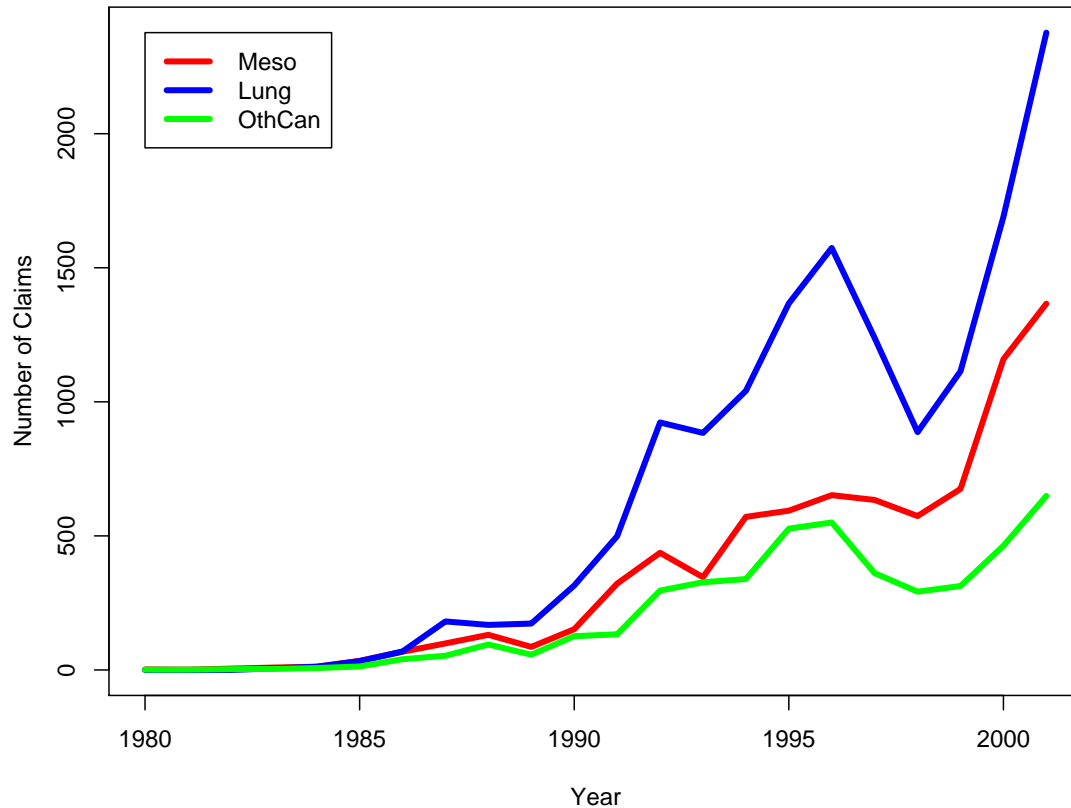
Table 29: Number of Filings Against Grace, By Filing Year and Disease (After Reallocation)

Filing Year	Number of Filings					
	Meso	Lung	OthCan	Nonmal	None	Total
1980-	2	0	1	3	0	6
1981	1	0	1	10	0	12
1982	5	0	3	23	2	33
1983	9	6	4	164	88	271
1984	12	12	7	311	43	385
1985	34	33	13	531	3	614
1986	68	69	40	1,516	32	1,725
1987	99	181	53	2,327	392	3,052
1988	131	168	95	5,377	489	6,260
1989	86	173	57	4,201	370	4,887
1990	152	315	126	5,047	350	5,990
1991	322	499	133	13,085	1,293	15,331
1992	437	923	296	15,574	1,128	18,358
1993	346	884	327	15,340	1,457	18,355
1994	571	1,041	339	18,030	984	20,966
1995	594	1,367	527	29,219	678	32,386
1996	652	1,574	550	34,454	2,176	39,407
1997	634	1,238	361	23,651	914	26,797
1998	574	887	292	18,302	1,258	21,313
1999	675	1,114	313	20,295	2,180	24,576
2000	1,159	1,690	463	40,079	3,471	46,861
2001 (1/4)	566	1,082	293	30,292	1,420	33,653
2001 (Ann)	1,366	2,377	649	60,514	3,777	68,683
Total	7,129	13,256	4,294	277,831	18,728	321,238

Notes: Entries for 2001 (in red) are filings only through the first quarter before Grace's April 1, 2001 petition. Entries for 2000(Ann) (in green) are annualized filings using filing rates over the 27 month period January 1999-April 1, 2001, for the last three quarters of 2001

Figure 20 provides graphic representations of these increasing trends in Grace filings for each of the three types cancers. To provide the most meaningful information about Grace's filings that closely preceded its petition, we average filings over the period January 1999 to April 2001 to obtain annualized rates for 2001. Note that the instability in claim filings between 1996 and 1998, the sharp increases in 1996 and declines in 1997-1998 are results of the moratoria agreement that Grace negotiated with major plaintiff's law firms.

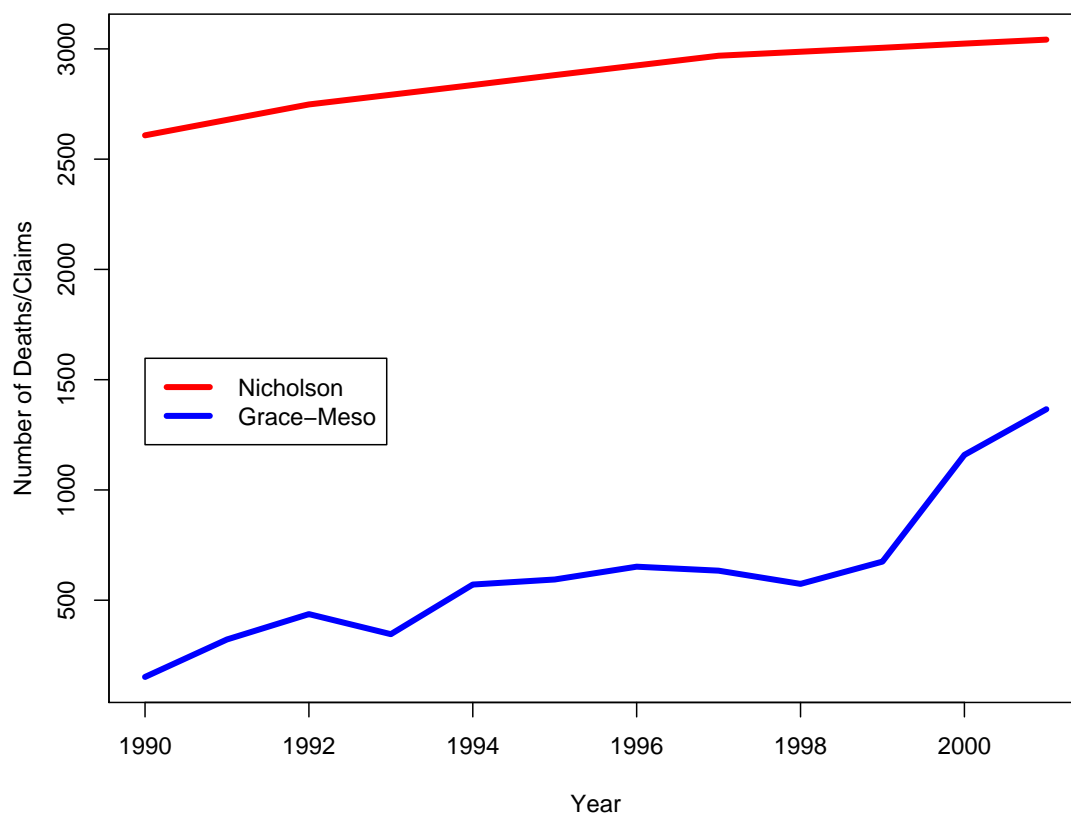
Figure 20: Number of Cancer Filings Against Grace



Note: Grace's 2001 filings are annualized across the period from January 1999 to April 1, 2001.

Figure 21 compares Nicholson's forecast of mesothelioma deaths between 1990 and 2001 with the number of mesothelioma claims filed against Grace in those years. As Figure 21 shows, during the three years before its bankruptcy, mesothelioma claims against Grace had increased sharply, growing closer to the incidence of mesothelioma deaths that Nicholson forecast. But even with these increases, the number of mesothelioma claims against Grace remained well below the number of mesothelioma incidences occurring in the country each year and below the number of mesothelioma claims filed against the Manville Trust.

Figure 21: Nicholson Meso Forecasts vs Grace Actuals



Note: Grace's 2001 filings are annualized across the period from January 1999 to April 1, 2001.

We used the standard Nicholson Method for forecasting future claim filings for each cancer, a method based on Grace's historic propensities to sue. To illustrate with mesothelioma filings: forecasts of future mesothelioma claim filings are based on a calculation of the relationship between past claims to the past incidence of the disease. This calculation, the "propensity to sue," is derived by dividing the number of claims for mesothelioma in a year (the lower, blue line in Figure 21) by the number of mesothelioma deaths projected for that same year (the higher red line in Figure 21). This establishes the historic claiming rate for mesothelioma against Grace, what percent of persons getting mesothelioma in each past year have filed a claim against Grace. Propensities to sue Grace for lung cancer and for other cancers are calculated similarly, by dividing the number of claims for each type of cancer in a year by the Nicholson forecast of the number of asbestos-related deaths from that cancer in the same year.

Table 30 below shows the annual propensities to sue Grace calculated for each of the three types of asbestos-related cancers for each year since 1990. From the early 1990s the number of cancer claims filings have increased steadily for most asbestos defendants, but this pattern differed somewhat for Grace. Propensities to sue Grace were relatively low and flat during the early 1990s and before, but these increased in the mid-1990s as Grace became more prominent in the litigation and jumped even more in 2000 and 2001 as other target asbestos defendants entered bankruptcy and with Grace's extensive bad publicity. Grace's filings in the late 1990s were affected by major law firms' agreement to a moratoria in those years as a term in their inventory settlements with Grace. These plaintiffs' law firms agreed to file no claims (but for a few

exceptions) for several years. The filing moratoria reduced filings during the last years of the 1990s, pushing some filings forward into the earlier years in which the agreements were signed and pushing other filings later. If Grace had not been able to implement these moratoria, its filing trends preceding its bankruptcy would have shown a smoother and steadier increase. Furthermore, Grace itself concluded that even after they ended the moratoria continued to suppress its claim filings through the time of Grace's bankruptcy petition (Hughes Deposition, February 22, 2007, pp. 81-82), artificially reducing both the filings in the two years preceding the petition and also liability forecasts that are based on filings during those years.

Table 30: Propensities to Sue Grace, by Disease: 1990-2001

Filing Year	Type of Cancer		
	Meso	Lung	OthCan
1991	12.0%	9.1%	8.9%
1992	15.9	16.8	19.8
1993	12.4	16.2	22.1
1994	20.1	19.3	23.1
1995	20.6	25.5	36.3
1996	22.3	29.7	38.2
1997	21.4	23.5	25.3
1998	19.2	17.2	21.0
1999	22.5	22.1	22.9
2000	38.3	34.3	34.7
2001	74.4	90.1	89.8
00-01	45.6	45.3	45.5
99-01	35.4	34.8	35.3

Note: 2001 propensities to sue are annualized based on filings and incidence for one quarter. 00-01 annualized rates are over 15 month period from January 2000 to April 1, 2001. 99-01 annualized rates are over 27 month period from January 1999 to April 1, 2001.

Forecasts of future Grace claims must take two matters into account: (1) the most recent level of claiming shown by the propensities to sue during years preceding Grace's bankruptcy filing and (2) the fact that cancer filings and propensities to sue had increased sharply as of April 2001. Together these matters not only establish a starting point for forecasting future Grace cancer claims based on the most recent propensity to sue, but also suggest that propensities to sue Grace would continue to increase and exceed the levels of the base period. Although Grace did not discuss claim filing trends in terms of propensities to sue, it too acknowledged that its future claims filings would increase in its 2000 Annual Report (Section 3.2 above). Moreover, asbestos cancer claim filings have increased since Grace filed for bankruptcy in 2001. Because it is now six years since Grace's petition, we have the opportunity to examine subsequent claims filings against other asbestos defendants over the past six years and to use these as guides to what would have happened to Grace's claim filings had it continued in asbestos litigation after April 2001, as I discuss below.

Despite the evidence that claim filings would have continued to increase after its petition date, and Grace's and our expectations of such increase, our forecasts here are more conservative. We forecast, first, that the number of future nonmalignant claims filed against Grace would not have increased at all, but would have begun by falling sharply in 2002 after Grace's petition date and

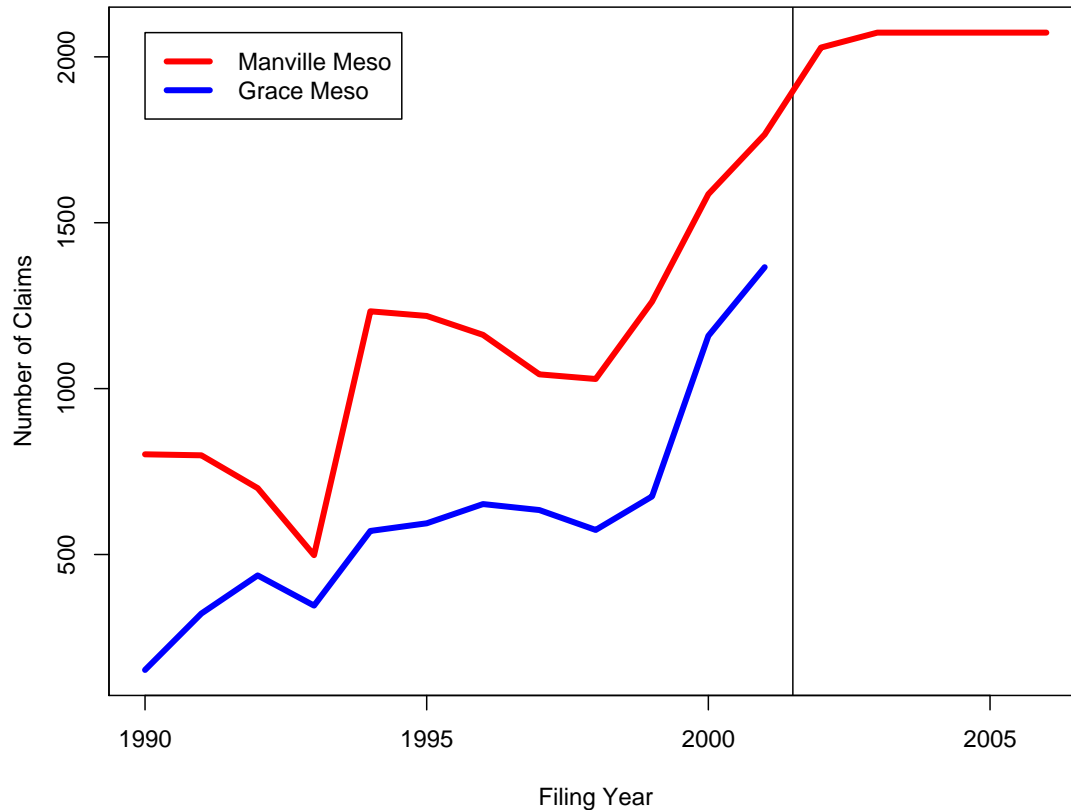
would decline for thereafter year-after-year in the future. Second, we forecast that the number of cancer claim filings also would not have increased, but rather would have remained essentially stable over the five years following Grace's bankruptcy. We forecast that Grace's cancer filings in 2002 would fall sharply from filing rates at its petition date and would then have increased slowly for five years. Only by 2006, would cancer filings finally approach Grace's pre-petition levels in 2000 and 2001. Overall, cancer filings over this five year period (2002-2006) would be lower than cancer filings at the time of Grace's bankruptcy. We forecast that then, beginning in 2007 and in all future years, Grace's cancer filings would drop slowly but steadily year-after-year in parallel with the gradually declining disease incidence.

In addition to annual rates, Table 30 shows propensities to sue Grace for two periods: 2000-2001, the fifteen months immediately preceding Grace's bankruptcy petition, that shows the level of claiming against Grace at its petition date. Because claims filings against Grace and other defendants were trending upward at the time of its bankruptcy petition, these most recent propensities represent the best assumption about the starting point for forecasting the continuing trends in claim filings against Grace. The second period shown in Table 30, 1999-2001, is longer, including the earlier year 1999 when claims filings against Grace were markedly lower than the fifteen months preceding its bankruptcy. Use of this longer propensity to sue period (1999-2001 rather than 2000-2001) results in a forecast that is lower than Grace's claim filing trends at the time of its bankruptcy. Rather than forecasting a continuing increase in claims filings, the 1999-2001 propensities to sue produces forecasts that Grace claim filings would have dropped sharply after April 2001 to filing rates averaged over the 1999-2001 that are lower than Grace's actual filing rates in 2000-2001, the time of its petition. Although propensities to sue based on this longer 1999-2001 period are less consistent with Grace's filing experience before bankruptcy, we use the 1999-2001 base period in this report in order to produce conservative forecasts that will be most likely to underestimate, rather than overestimate Grace's asbestos liabilities. Our sensitivity analyses, presented in Section 7, show forecasts based on the alternative and likely 2000-2001 base period.

The rates of change that we forecast in propensities to sue Grace between 2001 and 2006 are rates of increase that actually occurred for the Manville Trust over the very period for which we forecast "future" Grace claims, i.e., from 2001 through 2006. We base our forecasts on the Manville Trust's actual propensities to sue for three reasons. First, we have Manville data about claim trends that are exactly contemporaneous for the "future" period that we need to forecast for Grace. Second, because Manville data are universally regarded as the most comprehensive data on asbestos claims filing and have been used repeatedly by analysts in forecasting liabilities for other defendants, they are appropriate for forecasting Grace's liabilities. Third, the Manville data are remarkably "clean," current, and free of problems such as the need to impute diseases among claims that do not have specific disease (see discussion of this issue in Section 6.1.4 above).

Manville's mesothelioma claim filings continued to increase after Grace's bankruptcy filing in early 2001. Figure 22 and Figure 23 show respectively the number of mesothelioma and lung cancer claims filed annually against Grace and against Manville. On each figure we continue Manville filings after Grace's bankruptcy filing and through 2006. The figures show Manville's filings for 2003 through 2006 averaged over those years, because claim filings over those years were distorted by 2003 changes to Manville's claims procedures. When the Manville Trust announced in 2002 that it would adopt new, stricter claims procedures in 2003 many claimants "accelerated" their filings; claims that would otherwise have been filed in these later years were filed instead in 2003. Consequently, Manville's claim filing trends for the four years from 2003 through 2006 are best represented by averaging its claims across those years as shown in Figure 22 and Figure 23, below.²⁸

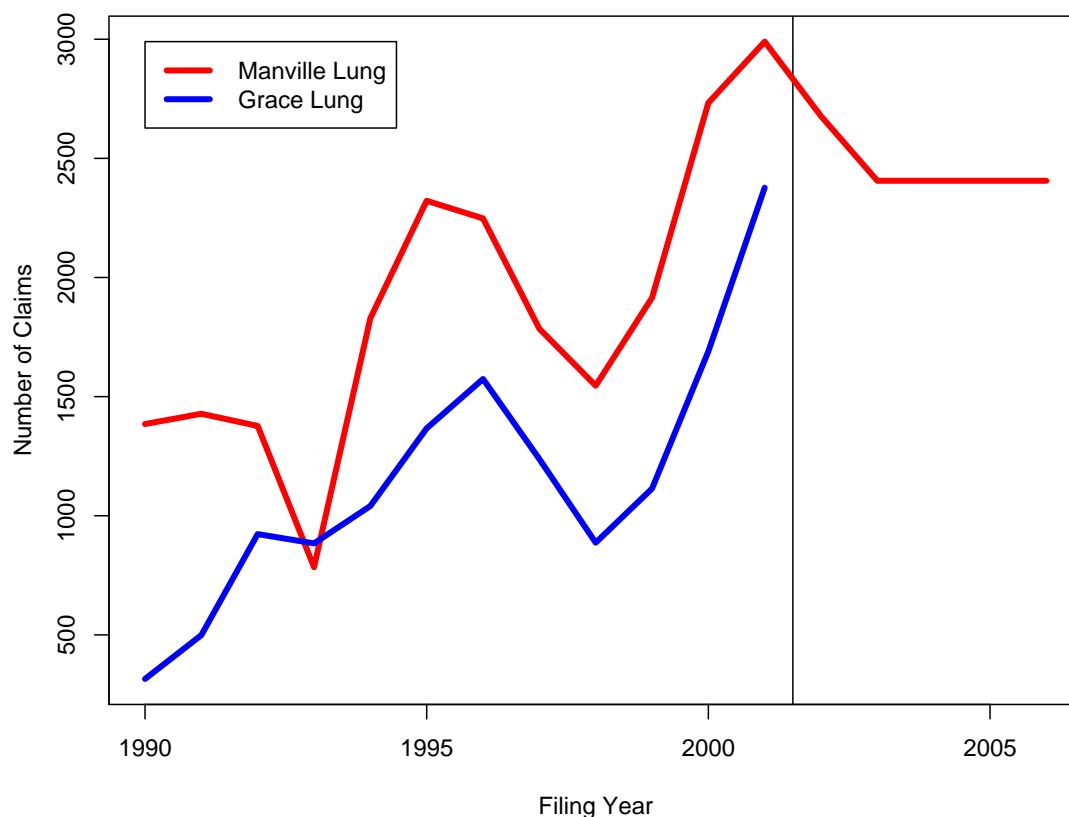
Figure 22: Trends In Grace and Manville Mesothelioma Claims (2003-2006 Smoothed)



Note: Grace filings in 2001 are annualized over the 27 month period from January 2000 to April 1, 2001. Manville 2003-2006 filings are averaged over that four year period.

28. David Austern, CEO of the Manville Trust, reported to Judges' Jack B. Weinstein and Burton R. Lifland: "As you may recall, the deadline to file claims pursuant to the original (1995) TDP was in late 2003 and law firms accelerated the filing of many claims to meet that deadline that, in the ordinary course, would not have been filed until 2004 or later" (Letter of February 28, 2006). Because of these temporal disturbances, we know that some of Manville's 2003 claims would have been filed later had the Trust not made and announced its changes, but we cannot know how many filings were accelerated. As a result, we can attach no significance to the different levels of filings across these four years.

Figure 23: Trends In Grace and Manville Lung Cancer Claims (2003-2006 Smoothed)



Note: Grace filings in 2001 are annualized over the 27 month period from January 2000 to April 1, 2001. Manville 2003-2006 filings are averaged over that four year period.

Table 31 shows our calculation of the rates of increase in Manville’s propensities to sue for each cancer between 2000 and 2003-2006. Because Nicholson’s forecasts of asbestos-related lung cancer deaths falls during the period 2000 through 2006, propensities to sue Manville’s for lung cancer remained stable from 2000 to 2006 even though claim filings were falling during these years.

Table 31: Rates of Increase in the Propensity to Sue

Disease	Current Manville
Meso	1.305
Lung	1.006
OthCan	1.291

Table 32 shows our forecast of the rates of annual increases in cancer propensities to sue (which are trivial for lung cancer): how we spread Manville’s actual rates of increase in propensities over the 2002-2006 period for our forecast of Grace propensities to sue during 2002-2006, the first five years of “future” claims. The “rate of increase” for 2002 is 1.00, i.e., no change from

propensities to sue obtaining during the 1999-2001 base period that we use for forecasting propensities to sue, but lower than Grace's actual propensities to sue during 2000 and 2001. We then forecast that beginning in 2003 Grace's propensities to sue would increase at rates parallel to Manville's from as shown in Table 32 so that by 2006 Grace's propensities to sue would have increased by amounts equal to the Manville increases shown in Table 31. As Table 32 shows, we forecast that the Grace propensities will increase gradually at the same rate of increase in each year from 2003 through 2006. After 2006 we forecast that propensities to sue Grace will remain unchanged at their 2006 levels. Because incidences of asbestos-related cancers are forecast to decline for each cancer after 2006, this means that we forecast decreasing numbers of cancer claims in each year after 2006.

Table 32: Rates of Increase in the Propensity to Sue

Disease	Rates of Increase					
	2002	2003	2004	2005	2006	2007+
Meso	1.000	1.076	1.153	1.229	1.305	1.305
Lung	1.000	1.002	1.003	1.004	1.006	1.006
OthCan	1.000	1.073	1.146	1.218	1.291	1.291

Table 33 shows the results of applying the Manville increases to forecast Grace propensities between 2002 and 2006. We start in 2002 with Grace's propensities to sue during the 1999-April 2001 base period. The propensities to sue for each year after 2002 is calculated by multiplying the 1999-2001 base period propensities (shown as the 2002 propensities) times the rate of increase for that year shown in Table 32. As Table 33 shows, the resulting propensities increase gradually over the first five "future" years for Grace, but these do not represent an increase over Grace's propensities to sue before its bankruptcy. Rather, by 2006 when our forecast propensities peak, they are equivalent to Grace's actual propensities at the time of its bankruptcy petition, the period 2000-2001 (shown in red in Table 33). Among asbestos defendants, the Grace forecasts after 2001 would not represent high propensities to sue. Even in 2006, we forecast that less than half of mesothelioma victims will file claims against Grace, well under Manville's recent 80 percent propensities for mesothelioma and well under Grace's own experience in the first quarter of 2001. Only one third of asbestos-related lung cancers and less than half other cancers caused by asbestos result in claims against Grace, rates that are again lower than recent rates for Manville and Grace itself in 2001. Finally, we forecast that after 2006, Grace's propensities to sue will remain fixed at the 2006 rates shown in Table 33.

Table 33: Actual and Forecast Propensities to Sue for Cancers

Disease	Actual			Forecast					
	1999	2000	2001	2002	2003	2004	2005	2006	2007+
Meso	22.5%	38.3%	74.4%	35.4%	38.0%	40.8%	43.4%	46.1%	46.1%
Lung	22.1	34.3	90.1	34.8	34.9	34.9	35.0	35.0	35.0
OthCan	22.9	34.6	89.8	35.3	37.9	40.5	43.0	45.6	45.6

Notes: Propensities to sue in 2001, shown in red, are based on one quarter year. Forecast 2002 propensities are Grace's propensities averaged over the period 1999-2001.

Our forecasts of future filings against Grace are strongly conservative. Even though the environment of asbestos litigation in the early 2000s caused most observers, including Grace and us, to expect increases in future claim filings, our liability forecasts assume no such increase in Grace claim filings. Figure 24 shows graphically our forecast of mesothelioma claim filings for each year after Grace's bankruptcy petition. The vertical bar at year 2001 represents the time of Grace's bankruptcy filing. To the left, the upper curve shows the annual Nicholson forecast of mesothelioma incidence (in green) and the lower curve the number of mesothelioma claims filed against Grace (in red), the two parameters that are used to calculate the Grace propensity to sue. Forecast claims are to the right of vertical bar, with the Nicholson incidence forecast again the upper curve and our forecast of future mesothelioma filings the lower curve (in blue). In each future year the forecast number of mesothelioma claim filings is calculated by multiplying the Nicholson incidence for that year (the upper curve) times the propensity to sue for that year. As I discussed, forecast mesothelioma filings start in 2002 well below actually Grace filings in 2000 and 2001, remain below through 2005 and then approach the 2000-01 level only in 2006. Thereafter, mesothelioma filings fall slowly as deaths from mesothelioma slowly decline.

Figure 24: Nicholson Meso Forecasts vs Grace Actuals

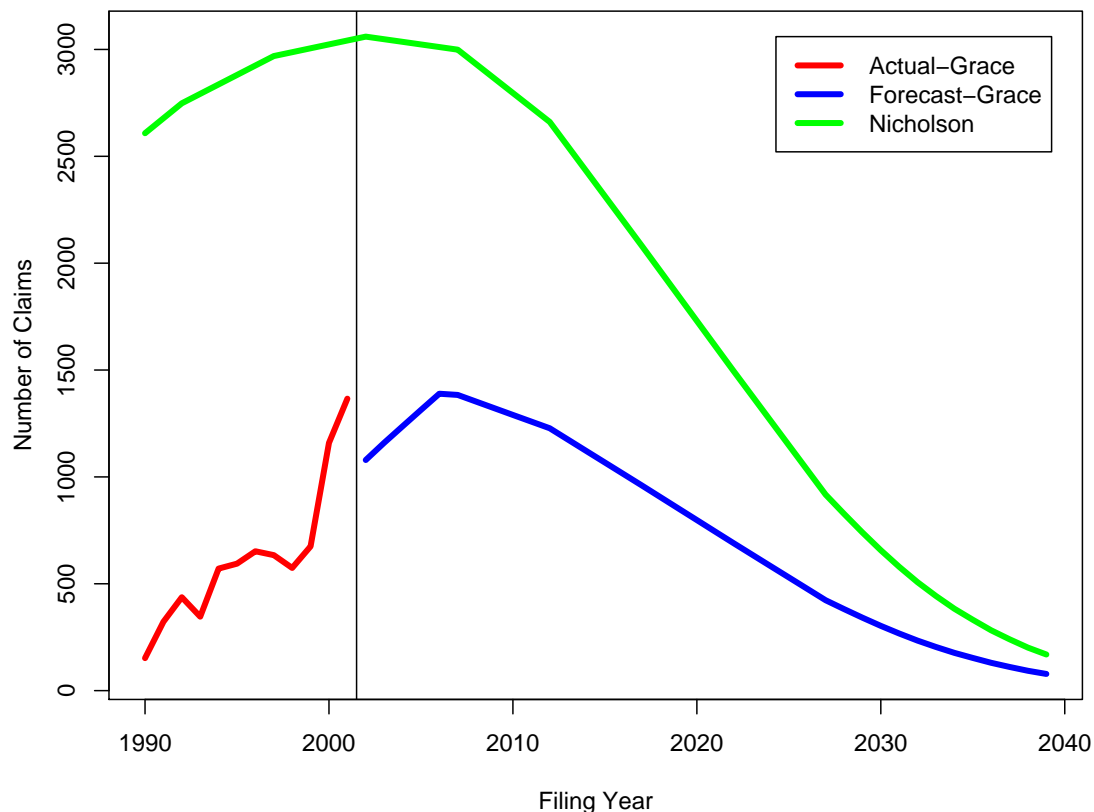


Figure 25 shows the context of our forecast of Grace's future mesothelioma claims comparing both past and forecast future claims for Grace from 1990 through 2006 with the number of mesothelioma claims received by Manville over the same period (again averaging Manville's 2003-2006 filings because of the 2003 accelerated filings). Note that mesothelioma filings against each defendant were roughly parallel prior to Grace's petition date. Our conservative forecast does not assume continuing parallelism after April 2001. Rather, we forecast a much greater gap between the filings against each: that Grace's claims fall in 2002 while Manville's increased and a gap that is never reduced in later years.

Figure 25: Trends In Grace and Manville Mesothelioma Claims (2003-2006 Smoothed)

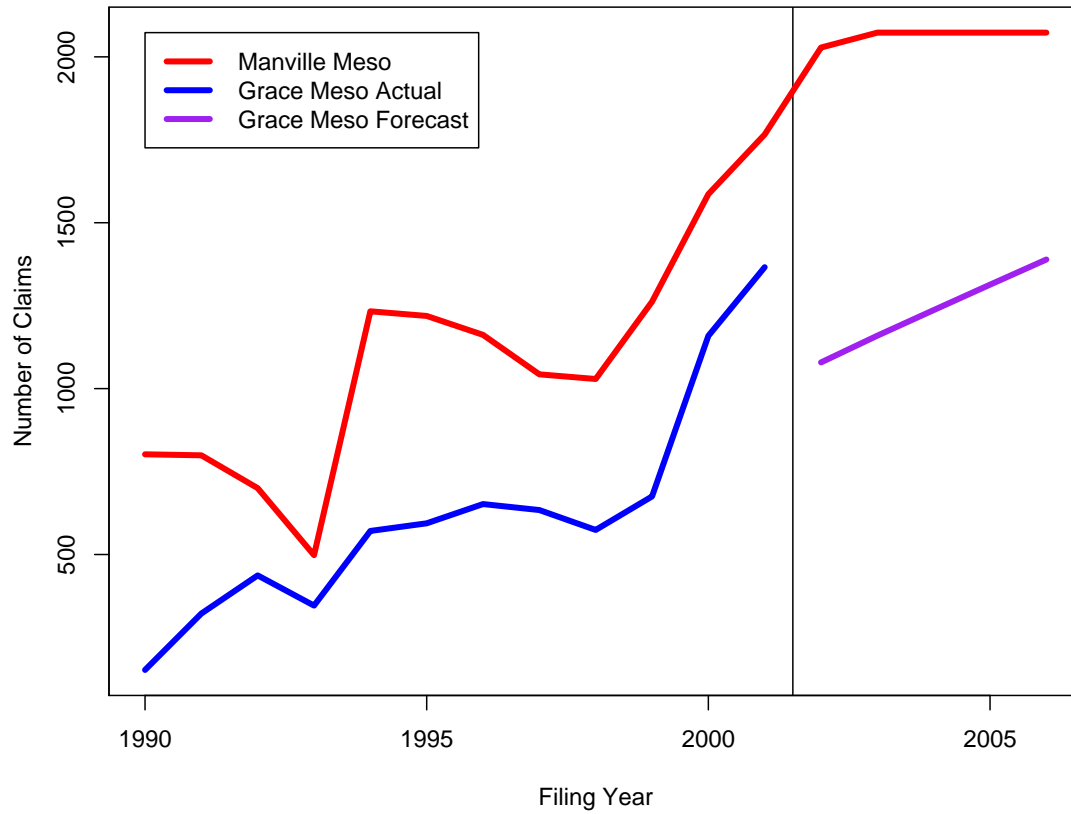
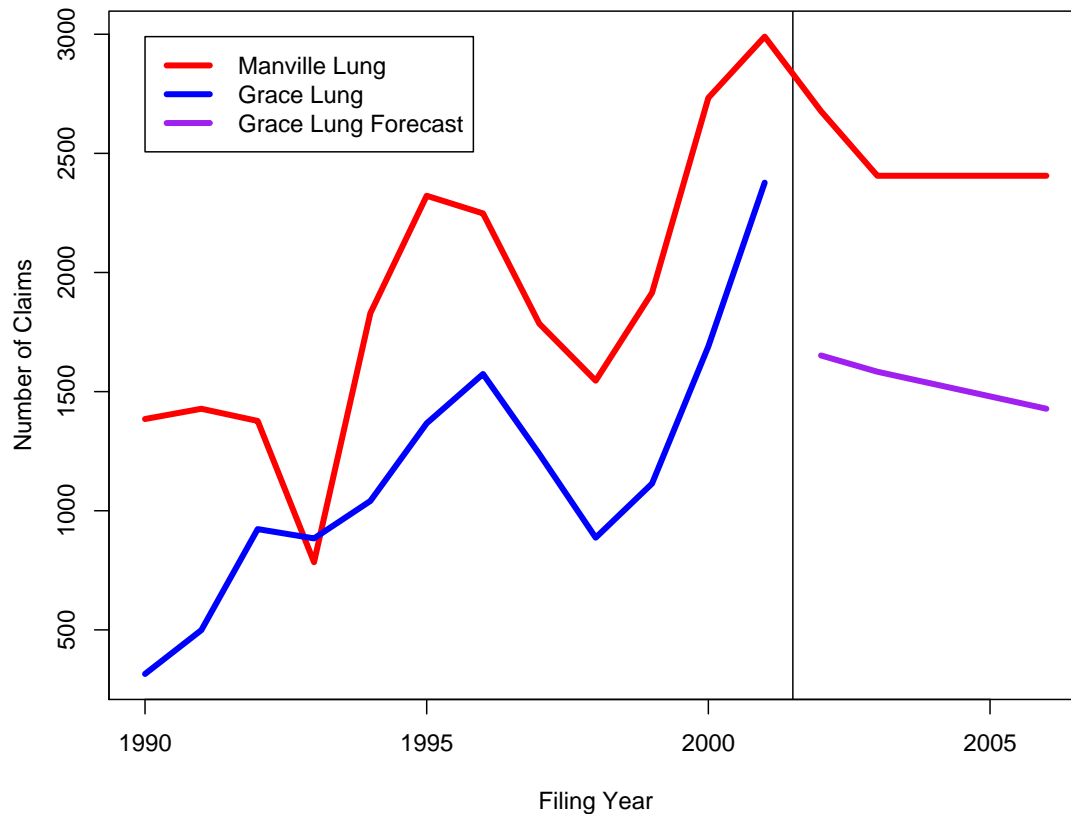


Figure 26: Trends In Grace and Manville Lung Cancer Claims (2003-2006 Smoothed)



We carry out similar calculations for lung cancers and other cancers. For each cancer, we forecast fewer annual claim filings than Grace received before its petition date. Figure 26 compares Grace and Manville filings and trends for lung cancer claims. Again for lung cancer as for mesothelioma, we forecast that the parallelism in filings against each defendant that had obtained before Grace’s bankruptcy would change after April 2001. Our forecast of a sharp decrease in Grace lung cancer filings for 2002 introduces a much wider gap than we saw in comparing filings for the two defendants in prior years. Because we forecast that Grace lung cancer filings continue to decrease after 2002, this sharply widened gap is never reduced in future years.

Table 34 shows the total number of future claim filings that we forecast for each type of cancer through year 2039, the end of our forecast period.

Table 34: Number of Forecast Cancer Claims Filed After April 2001

Model	Forecast Cancer Claims			
	Meso	Lung	OthCan	Total
Nicholson	29,268	26,086	8,765	64,119

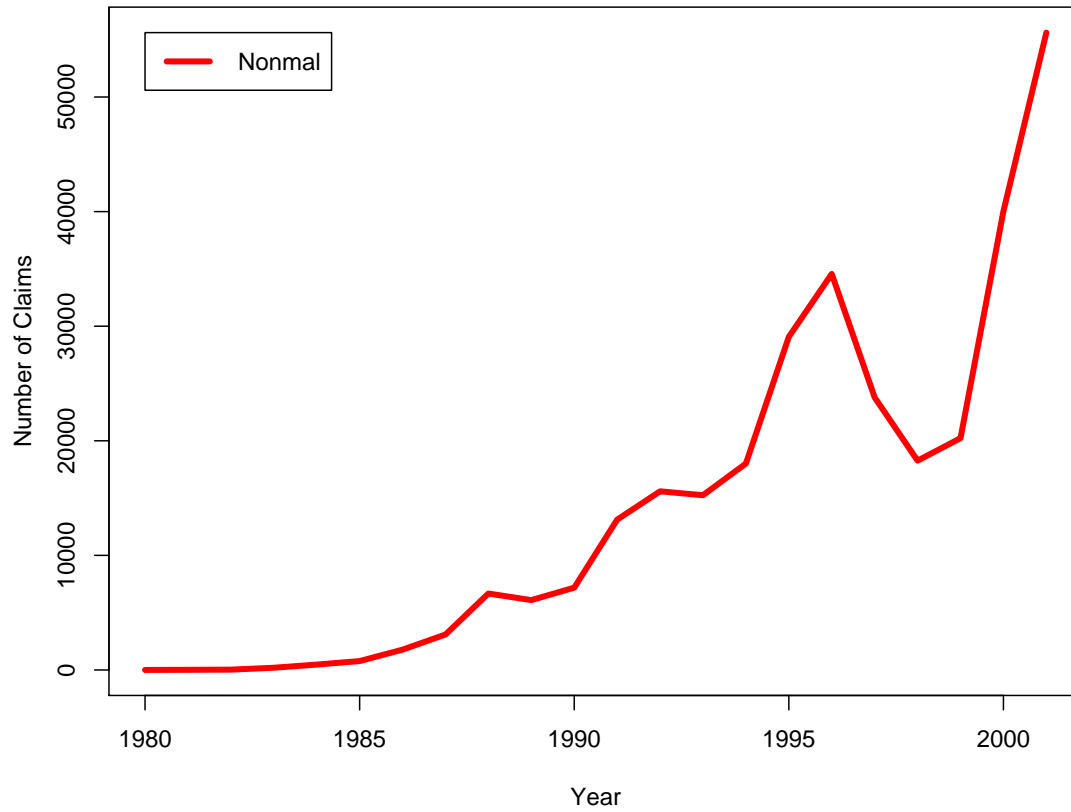
6.2.4. Projection of Future Nonmalignancy Claims

To forecast the number of asbestosis and pleural claims that will be filed against Grace in future

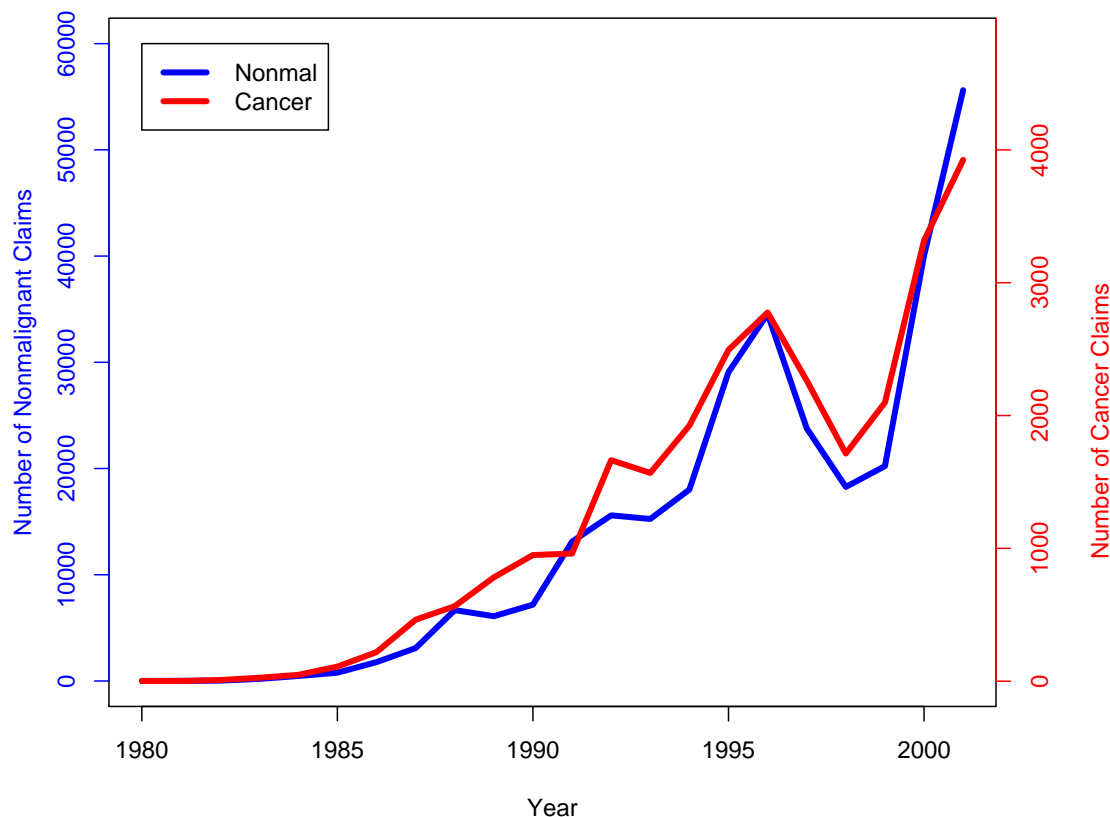
years we do not use the same method that we use to forecast Grace's future cancer claims. First, there are no published, peer-reviewed epidemiological projections for the incidence of nonmalignant asbestos-related diseases that are like the Nicholson cancer forecasts and no epidemiological forecast of nonmalignant asbestos-related disease has been tested and confirmed by actual experience as have the Nicholson cancer forecasts. Second, the disease processes for asbestos-related cancers and asbestos-related nonmalignant diseases differ. Unlike the asbestos-related cancers, which become known to victims abruptly through the rapid onset of symptoms and diagnoses, nonmalignant diseases are insidious. Asbestosis and pleural diseases are progressive diseases that develop gradually over time with the accumulation of scarring of the lungs or pleura. Because dyspnea (shortness of breath) and other effects of these disease increase over time, victims of these diseases may be unaware of the earliest onset of symptoms or may attribute breathing problems to their increasing age or other possible causes. So unlike the asbestos-related cancers, which become known to victims by a signal event--the diagnosis of a grave disease--that will be most likely to trigger claim filing, victims of nonmalignant asbestos diseases may become aware of their diseases gradually or they may be made aware by a medical diagnosis of asbestosis or pleural disease that could be made earlier or later in the progression of the disease. Consequently, filings of claims for asbestosis and pleural disease cannot be predicted from epidemiological evidence in the same manner as can filings of asbestos-related cancers.

Based on our analyses of claims data for Grace and many other defendants we have seen that across all past years there has been an historically stable relationship between the number of cancer and nonmalignant filings against Grace. This is shown in Figure 28: the past trend in annual filings of nonmalignant claims against Grace is similar to its trends for cancer claims (filings are placed on different scales to demonstrate this parallelism). Like cancer filings, the Georgine class action suppressed filings of nonmalignant claims during the mid-1990s, but filings rebounded greatly after the U.S. Supreme Court rejected the Georgine class action in mid-1997 and, as with cancer filings, nonmalignancy filings remained at these new, higher levels until the time of Grace's bankruptcy. Figure 27, below, shows Grace's annual nonmalignant claim filings.

Figure 27: Annual Nonmalignant Claims Against Grace



Note: Grace's 2001 entry based on annualizing filings over the 15 months from January 2000 through March 2001.

Figure 28: Comparison of Nonmalignant and Cancer Claim Counts

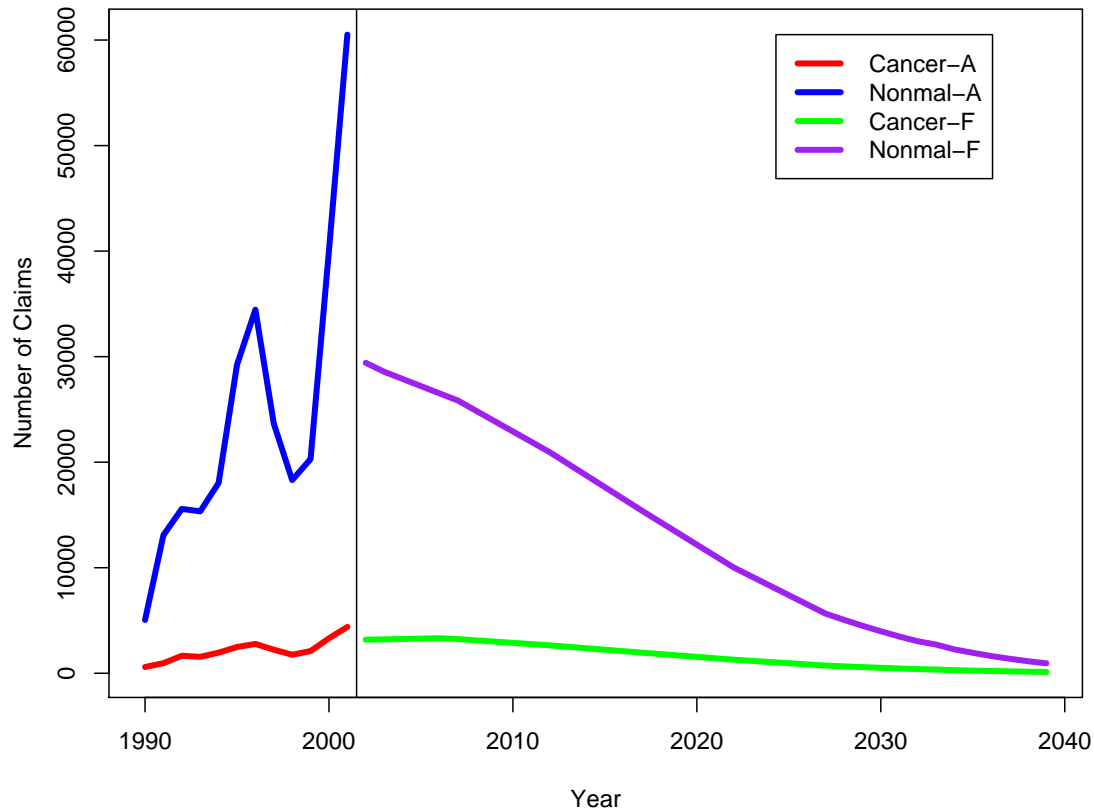
Claims filing trends for nonmalignant and malignant asbestos-related diseases corresponded closely because those filings are generated by similar sets of social, institutional and behavioral determinants. As Figure 28 demonstrates, in the past, filings of asbestos nonmalignant claims in a year could be predicted well from filings of cancer claims. The stable relationship between filings of cancer and nonmalignant claims has been one of the most common patterns in asbestos litigation, not only for Grace, but for other asbestos defendants as well.

Now, however, recent changes in the litigation environment have disturbed this historic stability between cancer and nonmalignancy filings. While cancer filings have increased or continued at high rates in the last few years, filings of nonmalignant claims have fallen. Some of the decrease in nonmalignant filings results from the U.S. Senate's extended consideration of asbestos legislation that would create a national compensation fund and eliminate asbestos litigation ("We attribute the comparatively low rate of claim filings in 2004 to three factors ... 3) the uncertainty surrounding the national asbestos litigation," February 28, 2005 letter from David Austern to Judges Jack B. Weinstein and Burton R. Lifland). The possibility of such legislation has broadly affected asbestos litigation, resulting in fewer settlements of asbestos law suits and reduced filings of new law suits. Given uncertainties about whether or not newly filed law suits would ever result in payment, plaintiffs' lawyers have become unwilling to spend the work and money required to prepare new cases, particularly nonmalignant claims. The possibility of national legislation particularly suppressed nonmalignant claim filings which are more likely than cancer claims to be generated by law firms' entrepreneurial activities and whose filings are more easily deferred because they are less subject to statutes of limitations. This suppression of claim filings resulting from the Senate's legislative considerations will likely be transitory, with a likely rebound in filings should the prospect of legislation disappear.

However, other developments suggest that filings of nonmalignant claims may never rebound to their great numbers of several years ago. First, several states that have been centers of much asbestos litigation have adopted new statutes that will limit the number of new law suits for nonmalignant claims in those states, primarily by establishing medical criteria that plaintiffs must establish in order to bring suit. Second, as I discussed above, courts and defendants have documented the troubling practices of some medical providers who have examined and prepared documents to support many plaintiffs' claims for nonmalignant injuries. While fewer recent claims have depended upon documentation by doctors subject to these criticisms, in the past a significant fraction of law suits for nonmalignant diseases have presented medical documents from doctors or medical facilities who have been criticized. This criticism and attention will likely reduce the number of future law suits for nonmalignant claims. Third, some plaintiffs' law firms have redirected their efforts in recruiting and filing asbestos injury claims, concentrating increasingly on more valuable and less controversial cancer claims. If this redirection by law firms continues, it could reshape asbestos litigation.

For all these reasons we expect that the historically stable pattern between the number of cancer and nonmalignant claims will change and that nonmalignant claim filings will decrease in future years, both relative to cancer filings and in absolute numbers. Although nonmalignant claim filings increased after 2000 among defendants who continued to receive asbestos claims, we forecast instead that after April 2001 future nonmalignant claims against Grace would decrease steadily from their levels immediately before Grace's bankruptcy. To forecast Grace's future nonmalignant claim filings, we start with the level of nonmalignant claims that it received during or after January 2000 then forecast that future claims will decrease at a rate parallel to the Nicholson forecast of the incidence of future asbestos-related cancers, i.e., at a constant relationship to the projected number of asbestos-related cancers. Medical researchers have suggested that trends in the incidence of cancers, like those forecast by Nicholson, represent the best means for estimating asbestos disease generally among exposed workers.

Figure 29 shows our long term forecast of future Grace claims. The figure shows the number of claims filed against Grace annually prior to the bankruptcy, showing separately our forecasts for cancer and nonmalignant claims: cancer claims appear at the bottom and nonmalignant claims appear above. In contrast to our forecast that Grace's cancer filings would be stable from 2002 through 2006, we forecast that Grace's future nonmalignant filings would drop immediately and greatly in 2002, nonmalignant filings in all of 2002 would be no more than the number it received in the *first three months of 2001*. Grace's nonmalignant filings in 2002 would be barely half of its annualized filings in 2000 and 2001. We forecast that nonmalignant filings would then decrease further in each year after 2002.

Figure 29: Actual And Projected Filings

The following two figures (Figure 30 and Figure 31) show past and forecast future claims separately for cancers and nonmalignancies in order to better demonstrate the differing forecast trends in filing for each type of disease claim. For cancers we forecast five years of reduced but generally stable filings, an immediate drop in 2002 followed by short-term increases through 2006 that reflect the experiences of other defendants between 2001 and 2006 and that would restore Grace filing levels about to their pre-bankruptcy level by 2006. But nonmalignant filings simply drop, according to our forecast, sharply at first and continuously forever. For both types of diseases, we forecast lower claims filings against Grace in the future than in its past, despite many strands of evidence and opinion (including Grace's) that claims filings would have increased after April 2001. Our forecasts are conservative in order to assure that we do not overestimate Grace's future filings.

Figure 30: Actual And Projected Cancer Filings

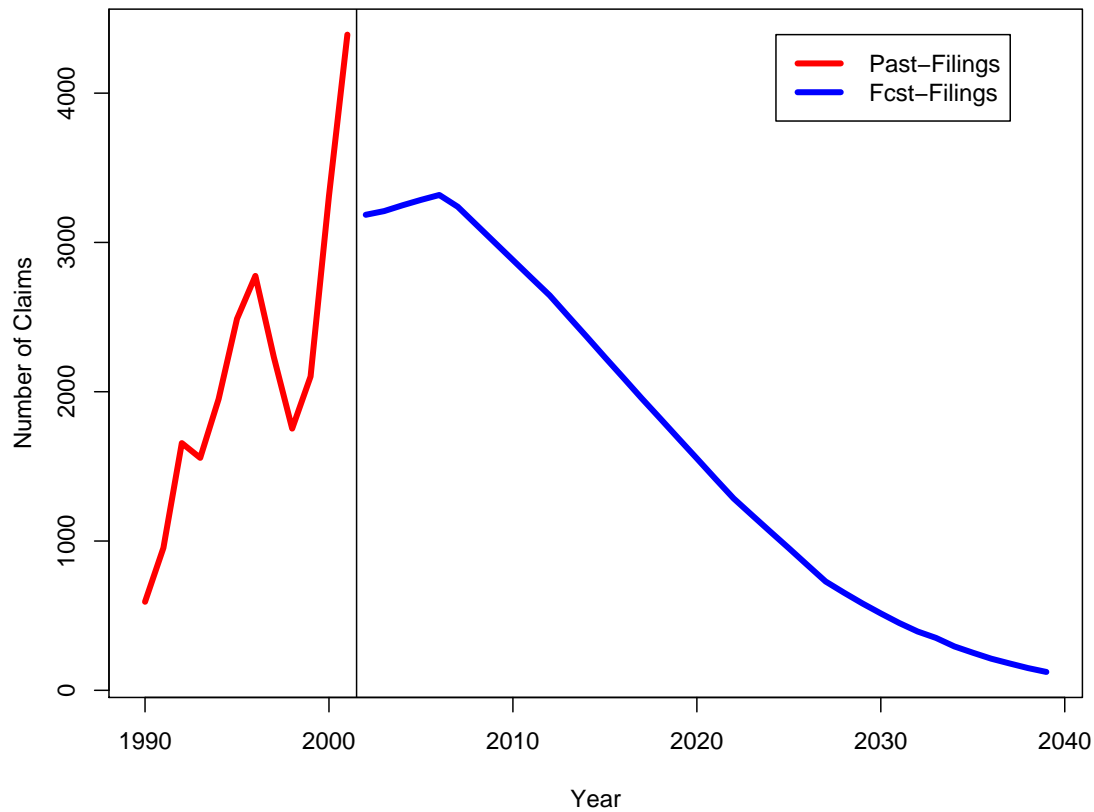
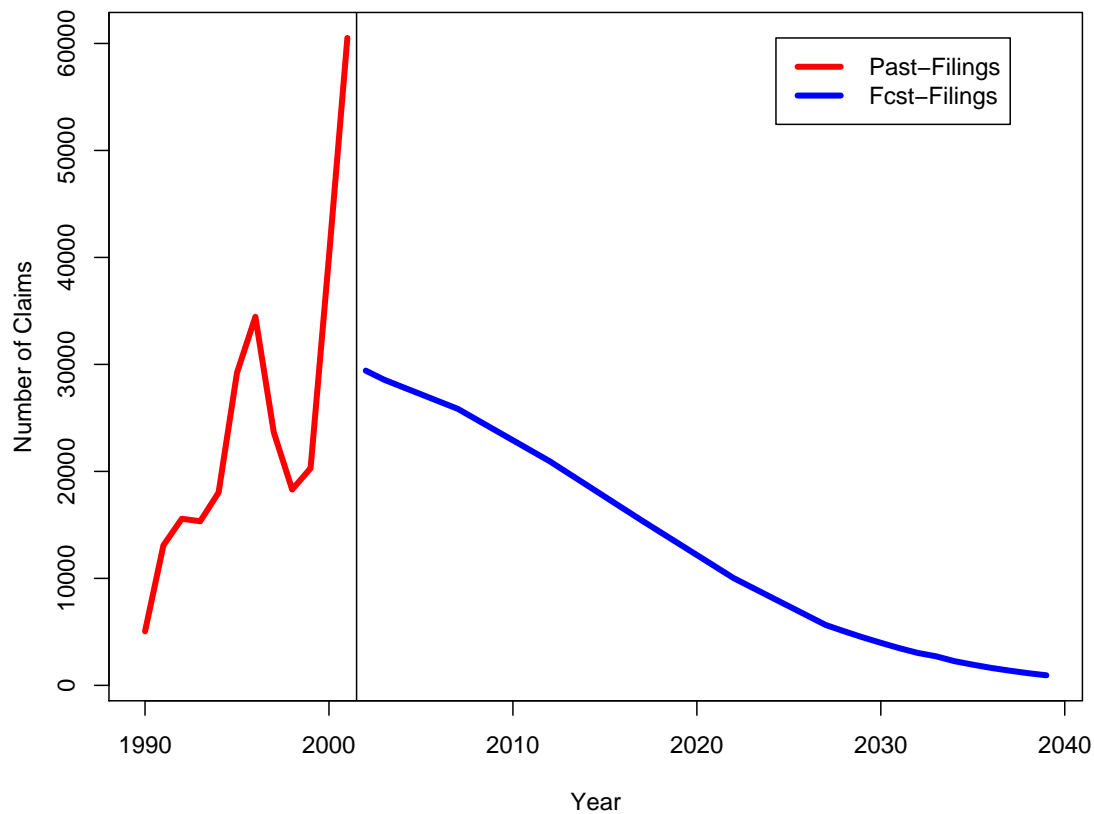


Figure 31: Actual And Projected Nonmalignant Filings



In order to understand the significance of these trends, how highly conservative all of our forecast assumptions are, it is important to recall that we also forecast sharp increases in the percent of claims that Grace will reject without payment. For each type of cancer and for nonmalignancies, we forecast that Grace will pay a far smaller fraction of filed claims than it did prior to 2001. In contrast to the fewer than *10 percent* of claims that Grace rejected pre-petition, we forecast that Grace would now reject *42 percent* of nonmalignant claims and would reject as many as *35 percent* but at least *20 percent* of the reduced number of cancer claims that we forecast for the future

When we combine these two sets of conservative assumptions--that in the future Grace will receive far fewer claim filings and then reject a greater percent of them--we forecast that Grace would pay far fewer claims after April 2001 than it has in the past. Despite all of the reasons to expect otherwise, in effect we assume that Grace would be far more successful in its asbestos litigation in the future than it had been before its bankruptcy.

The following figures show the dramatic turn-around that we forecast for Grace. We forecast that Grace will now pay a lower percentage of cancers (area in red in Figure 32), than it had in the past (area in gold in Figure 32). and a much lower percentage of nonmalignant claims (area in red in Figure 33) than it had in the past (area in gold in Figure 33). Our forecast of the total number of nonmalignant claims that Grace would compensate starts in 2002 at 41.3 percent of the number it paid in the year (January 2000-April 2001, annualized) before the bankruptcy and drops thereafter. We expect some amount of drop in compensated nonmalignant claims both because of Grace's possible turn to a more individualized process for reviewing and resolving claims and also because of the important recent changes in asbestos litigation--criticisms and increased scrutiny of medical documentation of nonmalignant claims, statutory and judicial changes in the legal treatment of nonmalignant disease claims, changes in the practices among plaintiffs' law firms. But we forecast such steep drops out of conservatism, to assure that we do not overestimate the number of claims that Grace will now pay.

Figure 32: Past and Projected Cancer Filings

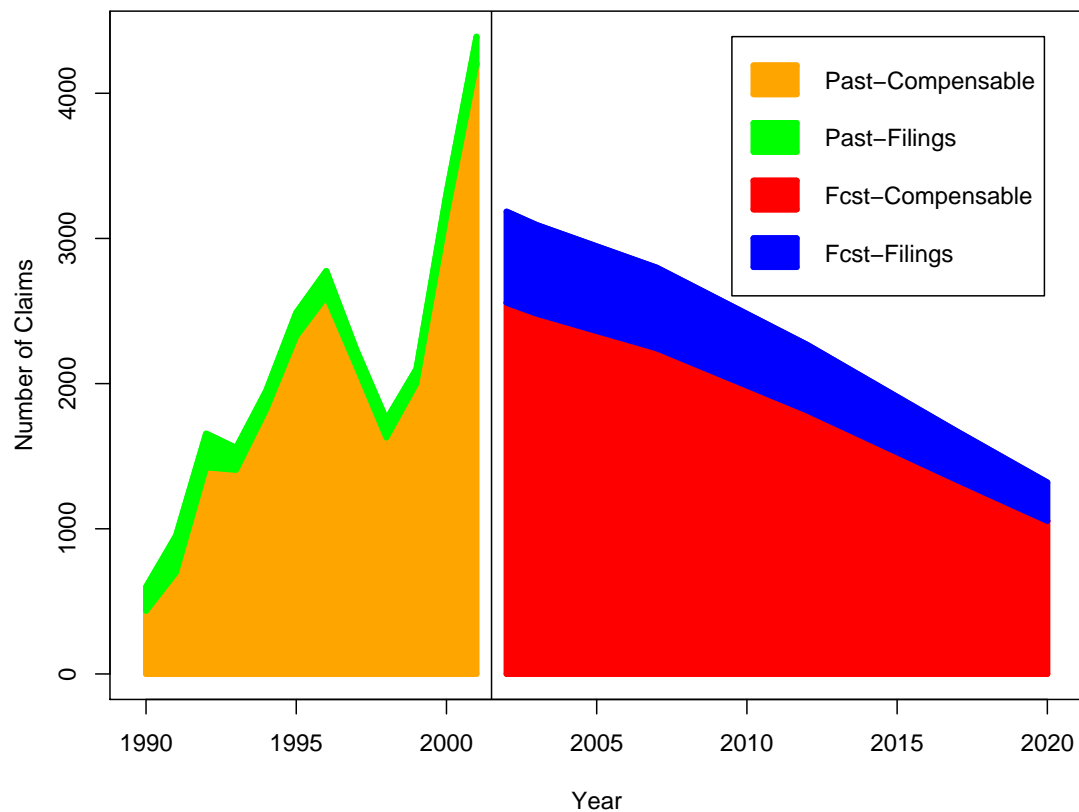
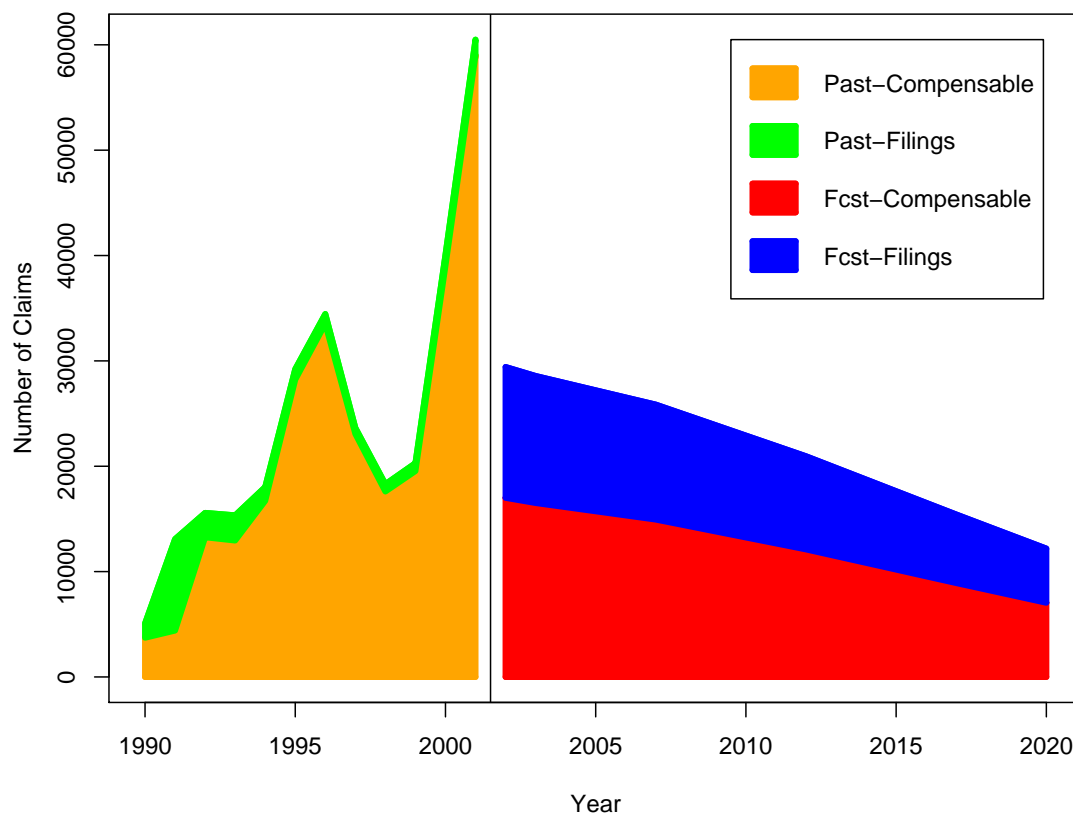


Figure 33: Past and Projected Nonmalignant Filings

6.2.5. Forecast Number of Future Claims

Table 35 shows the results of the forecast. Appendix Table C3 shows the forecast filings for each disease for each year from 2001 to 2039.

Table 35: Number of Forecast Claims Filed After April 2001

Model	Forecast Claims				
	Meso	Lung	OthCan	Nonmal	Total
Nicholson	29,268	26,086	8,765	520,183	584,302

6.2.6. Estimating Liability for Forecast Future Claims

To value future claims we used the same values that I discussed in presenting our forecasts for pending claims, the average settlement values and payment rates shown in Table 25 above. Our forecast average resolution values are obtained by multiplying settlement values and payment rates for each disease.

In forecasting the values of future claims, we assumed that payments would be adjusted for future inflation at a rate of 2.5 percent per year. This rate was being used by the Congressional Budget Office at the time of Grace's bankruptcy and is close to the rate of inflation since then. Table 36 shows the value of future claims adjusting future inflation.

Table 36: Forecast Indemnity for Future Claims after April 2001

Payment Rates	Average Settlement	Forecast Indemnity				
		Meso	Lung	OthCan	Nonmal	Total
Reduced	Long Term Grace	\$7,491	\$817	\$170	\$1,580	\$10,058
Reduced	Short Term Grace	6,356	881	152	1,838	9,227
Reduced	Quigley	6,266	900	113	2,196	9,475
Reduced	T&N	6,463	857	119	2,191	9,630
Reduced	USG	7,366	1,016	126	2,186	10,694
Lowest	Long Term Grace	\$6,169	\$673	\$140	\$1,580	\$8,562
Lowest	Short Term Grace	5,234	725	125	1,838	7,922
Lowest	Quigley	5,160	741	93	2,196	8,190
Lowest	T&N	5,322	706	98	2,191	8,317
Lowest	USG	6,066	837	103	2,186	9,192

Notes: Millions of dollars of the year when paid. Future claims are assumed to settle 2 years after filing. Indemnity is inflation adjusted at 2.5% per year. T&N values for other cancer and nonmalignants were estimated by averaging values for Quigley and USG.

The results in Table 36 estimate the value that we forecast for future claims in terms of the dollars of the year when claims will be paid. However, these do not represent the present value of Grace's liabilities. Since these liabilities will mostly arise in future years, they must be reduced to present value to account for the time value of money. Table 37 shows the estimated present value of these liabilities, based on a discount rate of 5.11%.

Table 37: Present Value (PV) of Future Claims as of April 2001

Payment Rates	Average Settlement	Forecast Indemnity PV				
		Meso	Lung	OthCan	Nonmal	Total
Reduced	Long Term Grace	\$3,520	\$434	\$89	\$810	\$4,853
Reduced	Short Term Grace	2,996	467	79	942	4,484
Reduced	Quigley	2,954	477	59	1,121	4,611
Reduced	T&N	3,045	455	63	1,119	4,682
Reduced	USG	3,464	538	66	1,116	5,184
Lowest	Long Term Grace	\$2,899	\$357	\$73	\$810	\$4,139
Lowest	Short Term Grace	2,467	385	65	942	3,859
Lowest	Quigley	2,433	393	49	1,121	3,996
Lowest	T&N	2,508	375	52	1,119	4,054
Lowest	USG	2,853	443	54	1,116	4,466

Notes: Millions of 2001 dollars. Future claims are assumed to settle 2 years after filing. Indemnity is inflation adjusted at 2.5% per year. Discount rate is 5.11%. T&N values for other cancer and nonmalignants were estimated by averaging values for Quigley and USG.

6.2.7. Estimating Liability for Pending and Forecast Future Claims

Finally, we add our forecast liabilities for pending and future claims. Table 38 shows forecast

indemnity as dollars of the year in which they will be paid. Table 39 shows the present value of those liabilities.

Table 38: Forecast Indemnity for Pending and Future Claims after April 2001

Payment Rates	Average Settlement	Forecast Indemnity				
		Meso	Lung	OthCan	Nonmal	Total
Reduced	Long Term Grace	\$7,753	\$907	\$183	\$1,791	\$10,636
Reduced	Short Term Grace	6,616	977	165	2,078	9,837
Reduced	Quigley	6,525	996	125	2,444	10,091
Reduced	T&N	6,724	952	131	2,439	10,247
Reduced	USG	7,634	1,114	139	2,433	11,321
Lowest	Long Term Grace	\$6,387	\$748	\$151	\$1,791	\$9,078
Lowest	Short Term Grace	5,450	805	136	2,078	8,470
Lowest	Quigley	5,375	821	103	2,444	8,744
Lowest	T&N	5,539	786	108	2,439	8,872
Lowest	USG	6,288	919	114	2,433	9,755

Notes: Millions of dollars of the year when paid. Future claims are assumed to settle 2 years after filing, present claims in 2002. Indemnity is inflation adjusted at 2.5% per year. T&N values for other cancer and nonmalignants were estimated by averaging values for Quigley and USG.

Table 39: Present Value (PV) of Pending and Future Claims after April 2001

Payment Rates	Average Settlement	Forecast Indemnity PV				
		Meso	Lung	OthCan	Nonmal	Total
Reduced	Long Term Grace	\$3,769	\$520	\$102	\$1,011	\$5,401
Reduced	Short Term Grace	3,243	558	91	1,171	5,063
Reduced	Quigley	3,200	569	71	1,357	5,196
Reduced	T&N	3,293	546	75	1,355	5,268
Reduced	USG	3,718	632	78	1,352	5,779
Lowest	Long Term Grace	\$3,106	\$429	\$84	\$1,011	\$4,629
Lowest	Short Term Grace	2,672	461	75	1,171	4,379
Lowest	Quigley	2,637	470	59	1,357	4,523
Lowest	T&N	2,714	451	62	1,355	4,581
Lowest	USG	3,064	522	64	1,352	5,001

Notes: Millions of 2001 dollars. Future claims are assumed to settle 2 years after filing, present claims in 2002. Indemnity is inflation adjusted at 2.5% per year. Discount rate is 5.11%. T&N values for other cancer and nonmalignants were estimated by averaging values for Quigley and USG.

7. Sensitivity Analyses

Forecasts of asbestos liabilities are inherently uncertain. Our forecasts have strong bases--epidemiological forecasts of asbestos diseases that have been tested and confirmed by twenty years of SEER counts of mesothelioma deaths, Grace's own recent claims history, contemporaneous data and trends concerning claim filings and payments for defendants whose experience we believe is relevant to Grace's liability, and conservative assumptions about future claim filings, settlement values and dismissal rates. However our forecasts of Grace's future liability would differ somewhat if we had made different assumptions about epidemiology, propensities to sue, payment amounts, or other factors in future years. This section examines how forecasts would have differed under different assumptions.

We define and then report on the results of systematically varying 8 types of parameters:

- the choice of epidemiological projections: (a) Nicholson, (b) KPMG
- base years for the cancer propensity to sue: (a) 1999-2001, (b) 2000-2001
- changes in cancer propensities to sue: (a) Manville Trust's rates of change through 2006, (b) no changes
- payment rates: (a) reduced, (b) lowest, (c) Grace's historic rates
- settlement values: (a) increases at Grace's past rates and rates among other defendants, (b) Grace's historic payments
- timing of changes: (a) immediate drop in payment rates but gradual increases in settlement values, (b) immediate changes in both payment rates & settlement values
- use of an alternative inflation rate assumption
- use of alternative discount rates

We first define these alternatives, then we present the results from their systematic variation. Our analyses and reported results are for present value of total liability based on the alternative assumptions examined in the sensitivity analyses.

Finally, we also include a sensitivity based on the much different approach to valuing Grace's liability asserted by the Debtors in this case: What would be the liability if Grace succeeded with its aggressive litigation strategy, disallowing almost all claims but trying those that it could not reject?

7.1. Alternative Parameter Selections

7.1.1. Alternative Epidemiological Models

In 1992, the consulting firm KPMG-Peat Marwick adjusted the Nicholson epidemiological forecasts as part of their engagement in the bankruptcy proceedings of National Gypsum. KPMG retained most elements of the Nicholson forecasts but used more recent Labor Department data and alternative medical models to estimate the incidences of mesothelioma and lung cancer. As shown in Figure 8, above, the KPMG forecasts are a reasonable, although less preferable, alternative to the original Nicholson forecasts of asbestos related cancer deaths. Nicholson's forecasts are superior because they have been more closely confirmed by subsequent SEER data on annual mesothelioma deaths. To examine the effects of using the specific Nicholson epidemiological forecasts of future cancer deaths, we also forecast future claims and liabilities using the KPMG forecasts.

7.1.2. Alternative Propensities to Sue

Throughout this report we have presented forecasts based on assumptions that propensities to sue for cancer claims would start in 2002 at their averages over the period 1999-March 2001, well below propensities for the most recent period 2000-April 2001, and then increase slowly for mesothelioma and other cancer again reaching the approximate levels of Grace's 2000-2001 propensities by 2006. In this section we vary these assumptions in two ways: (1) we compare forecasts using two different base periods for calculating propensities to sue, 1999-March 2001 (used throughout the report) and 2000-March 2001 and (2) for both base periods we make two different assumptions about changes in propensities to sue during the period 2002 to 2006, changes based on Manville Trust's experience in these same years (used throughout the report) and no changes. We estimate Grace's liabilities using all four combinations of these alternative assumptions.

The assumptions of our report (*1999-March 2001 and Manville increases for 2002-2006*) are conservative, forecasting fewer cancer claims during 2002-2006 than Grace was actually receiving at the time of its bankruptcy petition. One alternative (*1999-March 2001 and no change*) is even more conservative, assuming that beginning in 2002 and in all subsequent years propensities to sue Grace for cancer would be markedly lower than they were at the time of Grace's petition. This alternative is unlikely and inconsistent with changes in the litigation environment that would have subjected Grace to at least as many cancer filings in the future as it had at the time of its bankruptcy. While unlikely, we present the alternative to show what Grace's liability would have been had it achieved unexpectedly good success and luck in the litigation. A second alternative (*2000-March 2001 and no change*) is also conservative. It continues Grace's experience at the time of its bankruptcy petition, but ignores what happened to filings during 2002 to 2006, the first years of Grace's post-petition experience but years for which have filing data from the Manville Trust. The third alternative (*2000-March 2001 and Manville increases for 2002-2006*) best describes the state of asbestos litigation both at the time of Grace's petition (using its then current propensities to sue) and also after its petition (Manville's propensities through 2006). But while this third alternative seems the most likely, it is not conservative--it is not structured to assure that the forecast will underestimate rather than overestimate the number of cancer claims that would be filed against Grace in future years.

Table 40 contrasts the rates of change in propensities to sue for each of these four alternatives compared to Grace's propensities to sue at the time of its bankruptcy petition.

Table 40: Alternative Cancer Propensities to Sue

Disease	Filing Year	Type of Increase			
		1999-2001 Manville	1999-2001 No Change	2000-2001 Manville	2000-2001 No Change
Meso	2002	0.776	0.776	1.000	1.000
	2003	0.835	0.776	1.076	1.000
	2004	0.894	0.776	1.153	1.000
	2005	0.953	0.776	1.229	1.000
	2006	1.012	0.776	1.305	1.000
Lung	2002	0.769	0.769	1.000	1.000
	2003	0.771	0.769	1.002	1.000
	2004	0.772	0.769	1.003	1.000
	2005	0.772	0.769	1.004	1.000
	2006	0.774	0.769	1.006	1.000
OthCan	2002	0.776	0.776	1.000	1.000
	2003	0.833	0.776	1.073	1.000
	2004	0.889	0.776	1.146	1.000
	2005	0.945	0.776	1.218	1.000
	2006	1.002	0.776	1.291	1.000

Note: Base case is shown in red. Entries are propensities to sue for each model divided by propensities to sue Grace for the same disease in 2000-March 2001.

7.1.3. Alternative Payment Rates

I present forecasts using two different sets of payment rates throughout the report, *reduced* and *lowest*. The presentation of two sets of payment rates is a sensitivity offering to the Court, two assessments of liabilities using a likely level of claims rejection by Grace, the *reduced* payment rates, and a lower bound of liability assuming unexpectedly good success by Grace in rejecting claims (payment rates that are particularly unlikely among the reduced number claims that we forecast will be filed more selectively after April 2001). In this section I present a third alternative to show what Grace's liability would be if it continued to reject pending and future claims at the same rates it had achieved pre-petition.

7.1.4. Historic Settlement Amounts

For both the reduced and lowest payment rates that I present in the report, I use five alternative estimates of the amounts that Grace would pay to those claimants who receive some payment. Again, these alternatives provide sensitivities showing how Grace's liability would vary depending upon the method and data used to estimate the values of claims after April 2001. As a further sensitivity in this section I forecast Grace's liability assuming that it could have continued to pay claims in the amounts that it paid before its bankruptcy. It is unlikely that Grace could have accomplished this. Its settlement payments had gone up in value for many years before its bankruptcy; values paid by other defendants continued to increase after Grace's petition and events in asbestos litigation would have put pressure on Grace to continue its vast increases in settlement payments.

We use two different periods in which to calculate Grace's settlement values at the time of its bankruptcy, 2000-2001 and 2001 alone. For each set of values we use three different estimates of payment rates. First, we estimated Grace's liability using both its historic payment averages and its historic payment rates (8 percent among mesotheliomas, less than 5 percent for all other

diseases) in order to show what Grace's liabilities would have been had it continued resolving claims at the time of bankruptcy. Second, we used the *reduced* payment rates. These rates assume that Grace would reject many claims that it would have paid pre-petition, rejecting 15 percent of cancer claims that would have been paid before and 40 percent of nonmalignant claims that would have been paid. To estimate Grace's historic payment solely among the claims that it would now pay after these additional rejections, we calculated its historic average payments after excluding the lowest 15 percent of cancers and the lowest 40 percent of nonmalignant claims that it had paid in the past. Third, we used the *lowest* payment rates, which make the unlikely assumptions that Grace could reject 30 percent of cancers and 40 percent of nonmalignant claims while not increasing the amounts that it paid to resolve claims. Again we calculated Grace's historic average payments after excluding claims that it would not pay according to the lowest payment rate assumption, the lowest 30 percent of cancers and 40 percent of nonmalignant claims that it had paid pre-petition.

This analysis yields six alternative estimate of liabilities for our sensitivity analyses as shown in Table 41. The table shows the settlement values and payment rates for each alternative. As I discussed in Section 4.4, settlement values and payment rates are inversely related. As our assumptions attribute increasing success to Grace in rejecting claims, its payment rates decrease, it eliminates weaker claims and leaves a more valuable residue of claims that have higher values and that would receive larger settlements.

Table 41: Alternative Settlement Values and Payment Rates

Settlement Value Basis	Payment Rates	Forecast Settlement Value				Payment Rates			
		Meso	Lung	OthCan	Nonmal	Meso	Lung	OthCan	Nonmal
Historic 2000-2001	historic pay rates	\$93,640	\$17,912	\$9,891	\$3,372	92.1%	95.3%	96.7%	96.3%
Top 85% of 2000-2001	reduced pay rates	108,292	20,203	11,099	4,552	78.3	81.0	82.2	57.8
Top 70% of 2000-2001	lowest pay rates	126,959	23,455	12,918	4,552	64.5	66.7	67.7	57.8
Historic 2001	historic pay rates	\$97,839	\$18,290	\$10,124	\$3,472	95.7%	97.8%	98.5%	96.1%
Top 85% of 2001	reduced pay rates	113,724	20,516	11,239	4,689	81.3	83.1	83.7	57.7
Top 70% of 2001	lowest pay rates	124,144	23,082	12,713	4,689	67.0	68.4	69.0	57.7

7.1.5. Restoring the Timing of Payment Rates and Settlement Averages

The next sensitivity reestablishes the expected relationship between settlement values and payment rates that be ignored in our primary analysis of this report in an effort to provide conservative forecasts. As I discussed in Section 4.4, we forecast that in the future Grace would reject more claims, but would pay more on average to the more valuable claims that Grace could not reject. This pattern is consistent with Grace's understanding of its own experience in resolving asbestos claims and with asbestos litigation generally,. However, our assumptions for decreases in Grace's payment rates and increases in its settlement values occur over different time periods. We assume that Grace would immediately achieve greater success in rejecting claims; we assume lower payment rates for pending claims and for all future claims including those that would have been filed right after Grace's April 2001 petition date. In contrast, we assume that Grace's settlement values would increase slowly between 2002 and 2006. These matters of timing contribute to conservatism in our forecasts: change that lowers liability is assumed to occur immediately, change that increases liability is assumed to occur slowly over five years. But this non-correspondence in timing is unlikely for two reasons: one, it does not recognize the important relationship between payment rates and settlement averages and, two, it is inconsistent with the sharp increases in claims values for Quigley, T&N and USG that occurred in 2001.

While we assume that Grace's settlement averages would rise to the levels of these three other defendants, we assume conservatively that it would take five years longer for Grace to reach those levels.

We examine the effects of these conservative assumptions about timing, through an alternative sensitivity analysis forecast that makes changes in both payment rates and settlement values immediately after Grace's petition date.

7.1.6. Alternative Inflation Rates

The primary analyses of our report use a 2.5 percent inflation rate. At the time of the bankruptcy, CBO was assuming 2.5 percent in its analyses, and the rate of inflation over the years 2000 to 2005 was actually 2.5 percent. Now, however, CBO is assuming 2.2 percent, so we examine the effect of this assumption on our projections. It is plausible that the real rate of return (the difference between discount rates and inflation rates) will remain constant. Nevertheless, we examine the effect of inflation holding the discount rate constant.

7.1.7. Alternative Discount Rates

The financial analyst for the Future Claimants has suggested a discount rate of 5.11 percent. We examine the sensitivity of bracketing this at (a) 4.61 percent and (b) 5.61 percent.

7.2. Results of Alternative Parameter Selections

Table 42 displays the sensitivity results for all variations described above, contrasting the net present value of total liability with the base case.

Table 42: Sensitivity Analysis Results: Net Present Value

Parameter	Variation	Estimated Total Liability				
		Meso	Lung	OthCan	Nonmal	Total
Epidemiology	Nicholson KPMG	\$3,769	\$520	\$102	\$1,011	\$5,401
		3,495	521	102	958	5,075
Propensities to Sue	1999-2001 base & Manville Changes	\$3,769	\$520	\$102	\$1,011	\$5,401
	1999-2001 base & No Changes	3,051	518	85	1,011	4,664
	2000-2001 base & Manville Changes	4,788	650	127	1,284	6,848
	2000-2001 base & No Changes	3,862	647	106	1,284	5,898
Payment Rates	Reduced	\$3,769	\$520	\$102	\$1,011	\$5,401
	Lowest	3,106	429	84	1,011	4,629
	Historic	4,433	610	119	1,657	6,819
Settlement Values	Long-Term Grace Regression	\$3,769	\$520	\$102	\$1,011	\$5,401
	Historic 2000-2001, historic pay rates	2,031	428	75	1,575	4,109
	Top 85% of 2000-2001, reduced pay rates	1,997	410	72	1,284	3,762
	Top 70% of 2000-2001, lowest pay rates	1,928	393	69	1,284	3,674
	Historic 2001, historic pay rates	2,203	448	79	1,617	4,347
	Top 85% of 2001, reduced pay rates	2,177	428	74	1,317	3,996
	Top 70% of 2001, lowest pay rates	1,958	396	69	1,317	3,741
Timing of Changes	Immediate pay rates & gradual values	\$3,769	\$520	\$102	\$1,011	\$5,401
	Immediate pay rates & values	4,152	576	110	1,062	5,901
Inflation Rate	2.5 Percent	\$3,769	\$520	\$102	\$1,011	\$5,401
	3.0 Percent	4,010	544	107	1,061	5,722
	2.2 Percent	3,634	506	99	983	5,222
Discount Rate	5.11 Percent	\$3,769	\$520	\$102	\$1,011	\$5,401
	4.61 Percent	4,005	544	107	1,060	5,716
	5.61 Percent	3,554	498	97	966	5,114

Note: Base case is shown in red.

7.3. Trial Verdict Settlement Values

Some debtors or creditor groups in previous bankruptcies of asbestos manufacturers have asserted strategies like the Debtors in this case: that the Court should reject estimations based on Grace's own past settlement strategy but instead should value claims based on what Grace would have to pay were it to resort to thorough discovery and evaluation of each claim now pending against Grace coupled with Grace's aggressive pursuit of pretrial dismissals of law suits and then trials of those law suits that survived its motions to dismiss. Credit Suisse asserted a version of this strategy in the Owens Corning bankruptcy proceedings, arguing unsuccessfully that the court there should have mandated extensive discovery for a sample of claims followed by litigation about medical issues in those cases with its hope that many claims would be dismissed.

Whatever the success in eliminating some asbestos claims, the strategy proposed by the Debtors here, by Credit Suisse in the OC proceedings and similar proposals in other bankruptcies would still require valuation of claims that survived aggressive pretrial litigation over the qualification of claims. Historic settlement values could not be used to value these surviving claims, both because claims that survive aggressive pretrial litigation would be far stronger than average settled claims and also because these surviving claims would have answered all liability challenges in contrast to settled claims where issues of liability were uncertain and compromised. The surviving claims could only be valued through trials of damages issues or else estimated by looking to values that have been placed historically on claims that have prevailed in litigation about liability, i.e., the amounts of past verdicts.

To understand how pursuit of such an aggressive litigation strategy would have effected estimation of Grace asbestos bodily injury claims, I estimated how much Grace might have to pay pending asbestos claimants as the result of employing such a strategy. I made the exceptionally conservative assumption that Grace could eliminate 90 percent of its 102,921 pending claims through aggressive challenges to the medical conditions and great success in its legal challenges. While there is no reason to expect such extraordinary success under an aggressive Grace litigation strategy, I use the 90 percent rate to illustrate what would be an exceptionally good outcome of Grace under the strategy. This would have still left Grace with 10,921 pending asbestos claims that would have legally verified injuries and liability, claims that are analogous to plaintiffs who won the first stage of a bifurcated trial with the amount of damages being the only remaining issue.

To determine values of such claims I looked to Grace's actual trial history. The average verdict against Grace in all trials won by plaintiffs is \$799,769 in year 2001 dollars (an average of \$1,442,920 million for mesothelioma trials and \$353,812 among nonmalignancy trials). To provide an even more conservative analysis, I used Grace's \$330,571 average verdict over all plaintiffs in trials with verdicts, both verdicts won by Grace and those won by the plaintiff (an average of \$937,896 to mesothelioma plaintiffs and \$222,828 to nonmalignancy plaintiffs). This results in an estimated liability of \$3.4 billion in year 2001 dollars just for pending claimants ($10,292 \times \$330,571 = \$3,402,236,732$). This is approximately 8 times the liability for pending claims that we forecast in this report.

Even if the Grace could have been successful in eliminating 95.8 percent of all of its pending claims (assumed 90 percent pretrial plus another 5.8 percent based on Grace's historic percent of winning 58 percent of trials) through aggressive litigation like that it proposes in these proceedings it would face liability of \$3.2 billion simply for claims that were pending against Grace at the time of its bankruptcy petition. Under these conservative assumptions Grace's liability would increase almost 7-fold over its liability based on our assumptions in this report. We forecast that Grace faces a liability of about \$500 million for pending claims. An aggressive litigation posture would add about \$2.7 billion more.

Extrapolating these analyses to all asbestos claims, both pending and futures, Grace would incur a liability of \$30 to \$40 billion through its proposed approach of aggressive challenges and trials of those claims.

8. Rule 26 Disclosures and Signature

DATA CONSIDERED: In reaching the opinions and conclusions set forth in this Report, I have considered the following information: my background, training, experience and knowledge of the asbestos litigation developed over the past 25 years, the items of data explicitly identified in the report, publicly available sources of information concerning inflation rates, publicly available documents about Grace including its 10-Ks and 10-Qs, publicly available data from the National Cancer Institute's SEER registry, discount rates provided by Joe Radecki, Piper Jaffrey, and items identified in Exhibit 3 attached to this report.

EXHIBITS: The exhibits which summarize my opinions are included in the graphics and tables in the report and in the appendices to the report.

QUALIFICATIONS: My qualifications to perform this analysis and provide expert testimony are set forth in my C.V., a copy of which is attached as Exhibit 1.

PUBLICATIONS: Any publications I have authored within the past ten years are set forth in my C.V.

COMPENSATION: My compensation for services rendered in this case is set forth in the fee applications Legal Analysis Systems files on a regular basis with the Bankruptcy Court. At present, my hourly rate is \$700.

PRIOR TESTIMONY: A listing of all cases in which I have testified as an expert at either trial or deposition within the past four years is attached as Exhibit 2.

I reserve the right to modify this report as new information becomes available between now and the time of trial. I anticipate that I will review the expert witness reports of opposing expert(s) and offer my opinions about their analyses and conclusions in rebuttal testimony.

/s/ Mark A. Peterson

Mark A. Peterson, J.D., Ph.D.
LEGAL ANALYSIS SYSTEMS

Appendix A - Settlement Status of POC Filers

The Court could visit and resolve the settlement status for each of the 38,953 POCs filed as settled claims, but this would likely provide little help in clarifying Grace's overall asbestos liability. The total liability for these 38,953 claims would be unlikely to differ much whether they are treated as liquidated or as unliquidated claims and so resolution of their status will likely have little effect on estimates of total Grace liability. Most of the 38,953 claims appear to assert that they were settled as part of several large group settlement agreements between Grace and certain law firms. The settlement values for such group settlements are typically less than amounts paid when claims are not settled outside of such groups (Section, 4.3.2.1). Consequently group settlement values are less than settlements averaged across all settlements, both group and non-group. Grace's database confirms that settlement values for these liquidated-but-unpaid claims are low. The database reports that among the 18,520 liquidated-but-unpaid claims identified in the database, average settlement values are only about 60 percent of the averages for those settled claims that have been paid. So if we assume (or the Court confirms) that all 38,953 were settled claims, then 100 percent of the 38,953 would have a settlement value, but they would have relatively low average settlement values. We would have 38,953 claims with low average values. If, on the other hand, we assume (or the Court finds) no settlements among the 20,195 claims in dispute (38,953 liquidated claim POCs - 18,520 claims where Grace reports a liquidated settlement), these 20,195 claims would have neither the high payment percentages (100 percent) or low values that characterize the 18,520 unpaid claims where Grace reported a settlement. Some of 17,500 would have no value but the remainder would have higher average values than if they were treated as liquidated claims (using the historic average settlements calculated across all claims whether or not settled as part of groups). In other words, there are either (a) 38,953 already-settled claims with relatively low average settlement amounts or else (b) something less than 38,953 already-settled claims and among the remaining claims that are not settled some will have no settlement values, but others will have higher values (greater than the averages among liquidated-but-unpaid claims). So these two alternative outcomes will tend to wash out: to the extent that some of the 38,953 claims are treated as unsettled, then fewer claims would receive more on average. Total liability for the 38,953 claims under either alternative will not be far different. While there is no way to tell now with certainty whether the aggregate values of these 38,953 claims would be a bit greater or less under either alternative, that difference in value among these claims would be modest when compared to the total liability across all present and future claims and would not materially reduce the inherent uncertainty of this or any asbestos forecast. Finally, if the Court should choose not to determine the settlement status for all 38,953 claims, then disagreements about the settlement status of these claims can be resolved by the post-confirmation trust, as has been done in most other bankruptcy plans.

Appendix B - Linear multiple regression

We used multiple regression to fit a trend line to the logarithm of settlement values. We fit separate models for each disease over the period 1991 through 2001, and included variables to control for state of filing. The analysis provides an equation we can then extend into future years.

Multiple regression requires that the data fit certain requirements, one being that the dependent variable (here, settlement amounts) is approximately normally distributed (i.e., show a “bell-shaped” curve). But neither the distributions of settlements for Grace nor for any other defendant are normally distributed; rather, they are skewed, with many cases getting relatively low settlements and some claims getting very high values. Because we cannot properly run multiple regression on such a skewed variable, we transform the distribution by taking the logarithm of each settlement amount. This transformation produces an approximately normal distribution for the log of settlement values. After running the analysis, we then reverse the logarithmic transformation so that our forecasts estimate the mean (arithmetic average) for each year. This is a standard statistical approach to running regression analyses on skewed data. The effect of these steps is to somewhat reduce the impact of very large values, large settlements or verdicts that occur infrequently but regularly in tort litigation. Because large settlements and verdicts would have continued to occur had Grace stayed in litigation, these steps are necessary for using multiple regression.

While the logarithmic linear regression produces a straight line that best fits the logarithms of the settlement data, this becomes a slightly curved line after we transform the log results (accelerating slightly upward). This seems appropriate because Grace’s settlement amounts increased most sharply in recent years. We only use the regression results to forecast settlement values through 2006 and assume that thereafter values will remain at their real value levels in 2006, increasing amounts in future years solely for forecast inflation. By stopping the forecast increase in 2006, we minimize the effects of using a non-linear trend compared to using a linear trend.

Appendix C - Year by Disease Projections

This appendix provides the year by disease projections of Nicholson and KPMG (cancer incidences) and LAS projections of Grace filings as of April 2001).

Table C1: Nicholson Epidemiological Projections

Death Year	Meso	Disease Lung	OthCan	Total Cancers	Death Year	Meso	Disease Lung	OthCan	Total Cancers
1970	1,010	2,909	963	4,882	2005	3,023	4,230	1,143	8,396
1971	1,046	3,098	998	5,142	2006	3,011	4,075	1,099	8,185
1972	1,082	3,286	1,034	5,402	2007	2,999	3,921	1,055	7,975
1973	1,151	3,502	1,065	5,718	2008	2,931	3,734	1,006	7,672
1974	1,219	3,719	1,096	6,034	2009	2,864	3,547	958	7,369
1975	1,288	3,935	1,128	6,351	2010	2,796	3,361	909	7,066
1976	1,356	4,152	1,159	6,667	2011	2,729	3,174	861	6,763
1977	1,425	4,368	1,190	6,983	2012	2,661	2,987	812	6,460
1978	1,495	4,505	1,227	7,228	2013	2,545	2,811	762	6,119
1979	1,565	4,643	1,264	7,472	2014	2,429	2,635	713	5,778
1980	1,635	4,780	1,302	7,717	2015	2,314	2,460	663	5,436
1981	1,705	4,918	1,339	7,961	2016	2,198	2,284	614	5,095
1982	1,775	5,055	1,376	8,206	2017	2,082	2,108	564	4,754
1983	1,900	5,138	1,400	8,438	2018	1,965	1,937	519	4,421
1984	2,024	5,222	1,424	8,670	2019	1,847	1,766	474	4,088
1985	2,149	5,305	1,447	8,901	2020	1,730	1,596	430	3,755
1986	2,273	5,389	1,471	9,133	2021	1,612	1,425	385	3,422
1987	2,398	5,472	1,495	9,365	2022	1,495	1,254	340	3,089
1988	2,468	5,477	1,495	9,440	2023	1,379	1,132	307	2,819
1989	2,538	5,482	1,495	9,515	2024	1,264	1,011	274	2,549
1990	2,608	5,487	1,494	9,589	2025	1,148	889	242	2,279
1991	2,678	5,492	1,494	9,664	2026	1,033	768	209	2,009
1992	2,748	5,497	1,494	9,739	2027	917	646	176	1,739
1993	2,792	5,449	1,480	9,722	2028	827	575	157	1,558
1994	2,836	5,402	1,466	9,705	2029	740	508	138	1,386
1995	2,881	5,354	1,453	9,687	2030	657	446	122	1,225
1996	2,925	5,307	1,439	9,670	2031	579	388	105	1,072
1997	2,969	5,259	1,425	9,653	2032	507	336	92	935
1998	2,987	5,146	1,395	9,528	2033	443	316	79	837
1999	3,005	5,033	1,365	9,403	2034	383	246	67	696
2000	3,024	4,919	1,334	9,277	2035	332	208	57	596
2001	3,042	4,806	1,304	9,152	2036	282	174	47	503
2002	3,060	4,693	1,274	9,027	2037	240	144	38	423
2003	3,048	4,539	1,230	8,817	2038	201	117	32	351
2004	3,036	4,384	1,186	8,606	2039	169	94	26	290

Note: Nicholson's projections run through 2030. LAS extended those to 2039 using the year by disease rates of decline derived from the KPMG projections, below.

Table C2: KPMG Epidemiological Projections

Death Year	Meso	Disease Lung	OthCan	Total Cancers	Death Year	Meso	Disease Lung	OthCan	Total Cancers
1970	861	3,234	1,196	5,291	2005	2,347	3,638	990	6,975
1971	931	3,592	1,130	5,653	2006	2,294	3,474	945	6,713
1972	1,003	3,721	1,171	5,895	2007	2,234	3,311	900	6,445
1973	1,079	3,846	1,211	6,136	2008	2,173	3,149	857	6,179
1974	1,157	3,974	1,251	6,382	2009	2,105	2,989	813	5,907
1975	1,237	4,147	1,305	6,689	2010	2,034	2,831	769	5,634
1976	1,308	4,278	1,165	6,751	2011	1,960	2,674	728	5,362
1977	1,386	4,428	1,204	7,018	2012	1,880	2,520	686	5,086
1978	1,465	4,577	1,246	7,288	2013	1,798	2,371	644	4,813
1979	1,545	4,728	1,287	7,560	2014	1,713	2,224	604	4,541
1980	1,628	4,897	1,333	7,858	2015	1,627	2,083	566	4,276
1981	1,708	5,042	1,371	8,121	2016	1,538	1,942	528	4,008
1982	1,789	5,158	1,403	8,350	2017	1,447	1,808	492	3,747
1983	1,869	5,261	1,432	8,562	2018	1,357	1,677	457	3,491
1984	1,949	5,338	1,452	8,739	2019	1,269	1,553	422	3,244
1985	2,030	5,401	1,469	8,900	2020	1,180	1,434	390	3,004
1986	2,102	5,431	1,478	9,011	2021	1,094	1,317	358	2,769
1987	2,173	5,441	1,480	9,094	2022	1,009	1,206	328	2,543
1988	2,242	5,441	1,480	9,163	2023	928	1,101	300	2,329
1989	2,306	5,433	1,478	9,217	2024	850	998	272	2,120
1990	2,367	5,410	1,472	9,249	2025	775	902	245	1,922
1991	2,418	5,362	1,458	9,238	2026	703	811	221	1,735
1992	2,459	5,293	1,440	9,192	2027	634	724	197	1,555
1993	2,493	5,218	1,420	9,131	2028	571	643	175	1,389
1994	2,521	5,135	1,397	9,053	2029	510	567	154	1,231
1995	2,538	5,037	1,370	8,945	2030	452	497	136	1,085
1996	2,546	4,928	1,341	8,815	2031	398	431	117	946
1997	2,547	4,807	1,307	8,661	2032	348	373	101	822
1998	2,543	4,682	1,273	8,498	2033	303	346	87	736
1999	2,534	4,550	1,238	8,322	2034	262	271	74	607
2000	2,522	4,414	1,201	8,137	2035	226	228	62	516
2001	2,497	4,265	1,159	7,921	2036	192	190	51	433
2002	2,469	4,110	1,117	7,696	2037	163	157	42	362
2003	2,433	3,955	1,076	7,464	2038	136	127	35	298
2004	2,393	3,798	1,033	7,224	2039	114	102	28	244

Table C3: Forecasts of Number of Grace Filings, by Year, Model, and Disease

Filing Year	Payment Year	Forecast Filings				
		Meso	Lung	OthCan	Nonmal	Total
Liquidated	2002	139	466	215	17,700	18,520
Unliquidated	2002	2,885	5,350	1,325	93,361	102,921
Total Pending	2002	3,024	5,816	1,540	111,061	121,441
2001 (3/4)	2004	809	1,239	341	22,064	24,453
2002	2004	1,079	1,652	454	29,419	32,604
2003	2005	1,160	1,584	466	28,567	31,777
2004	2006	1,237	1,532	480	27,887	31,136
2005	2007	1,313	1,480	492	27,208	30,493
2006	2008	1,389	1,428	501	26,528	29,846
2007	2009	1,384	1,374	481	25,849	29,088
2008	2000	1,352	1,309	459	24,868	27,988
2009	2001	1,321	1,243	437	23,888	26,889
2010	2012	1,290	1,178	414	22,908	25,790
2011	2013	1,259	1,112	392	21,928	24,691
2012	2014	1,228	1,047	370	20,947	23,592
2013	2015	1,174	985	348	19,842	22,349
2014	2016	1,121	924	325	18,737	21,107
2015	2017	1,067	862	302	17,631	19,862
2016	2018	1,014	800	280	16,525	18,619
2017	2019	961	739	257	15,420	17,377
2018	2010	906	679	237	14,341	16,163
2019	2011	852	619	216	13,262	14,949
2020	2022	798	559	196	12,183	13,736
2021	2023	744	499	175	11,104	12,522
2022	2024	690	440	155	10,025	11,310
2023	2025	636	397	140	9,149	10,322
2024	2026	583	354	125	8,273	9,335
2025	2027	530	312	110	7,398	8,350
2026	2028	476	269	95	6,523	7,363
2027	2029	423	226	80	5,647	6,376
2028	2020	382	201	71	5,061	5,715
2029	2021	341	178	63	4,499	5,081
2030	2032	303	156	56	3,979	4,494
2031	2033	267	136	48	3,481	3,932
2032	2034	234	118	42	3,037	3,431
2033	2035	204	111	36	2,719	3,070
2034	2036	177	86	31	2,262	2,556
2035	2037	153	73	26	1,937	2,189
2036	2038	130	61	21	1,633	1,845
2037	2039	111	51	18	1,375	1,555
2038	2040	93	41	15	1,140	1,289
2039	2041	78	33	12	942	1,065
Total Futures		29,269	26,087	8,767	520,186	584,309
Total		32,293	31,903	10,307	631,247	705,750

Materials on which Dr. Mark Peterson relied for his testimony in W.R. Grace

Nicholson, <i>et al.</i> , <u>Occupational Exposure to Asbestos: Population at Risk & Projected Mortality – 1980-2030</u> , AM. J. INDUS. MED. 3:259-311 (1982)	
Weill, <i>et al.</i> , <u>Changing Trends in US Mesothelioma Incidence</u> , Occup. Environ. Med. 61:438-441 (2004)	
Grace claims database(s) referenced in the Report	**
RUST Questionnaire claims database information	**
Questionnaire responses and attachments	**
Electronic version of all calculations underlying Peterson report	
Mealey's Asbestos Jury Verdict Information	
Robert Beber deposition testimony in Sealed Air and Grace, and all exhibits	**
Jay Hughes depo testimony in Sealed Air and Grace, and all exhibits thereto	**
David Siegel depo testimony in Sealed Air and Grace, and all exhibits thereto	**
Grace documents identified in the report by Bates number	**
Complete trial record in <u>In re Armstrong World Indus.</u> (D.Del. 2006)	
Complete trial record in <u>In re Owens Corning</u> , No. 04-905 (D. Del. 2005)	
Complete trial record in <u>In re Federal Mogul</u> , No. 05-59 (D. Del. 2005)	
Memo re LAS SEER age adjustment calculations	
SEER data (http://seer.cancer.gov/faststats/sites.php?site=Mesothelioma&stat=Incidence)	
Manville Trust claims information database	
Manville Trust Projected Claim Filing Scenarios, Tillinghast, May 17, 2005	
<u>In re Silica Prods. Liab. Litig.</u> , 398 F.Supp.2d 563 (S.D. Tex. 2005)	
Publicly available 10-K Filings for Grace and other asbestos defendants referenced in the report	**
Vasquez/KPMG Projections of Asbestos Cancers	
Mealey's Presentation from C. Michael Evert, Jr., <u>Asbestos Litigation: Where has it been and where is it headed?</u> (2006)	
Reported Decisions in <u>In re Armstrong</u> , 348 B.R. 111 (D.Del. 2006); <u>In re Federal Mogul Global</u> , 330 B.R. 133 (D.Del. 2005); <u>Owens Corning v. Credit</u>	**

Suisse First Boston, 322 B.R. 719 (D. Del. 2005) and Memorandum Opinion in Owens Corning, (D. Del. April 13, 2005)	
Grace Disclosure Statement – section describing historical bases for asbestos liability	**
Claims data for Owens Corning, USG, Turner & Newall, Armstrong, Manville, Quigley and other defendants referenced in the report	
Mark Behrens Articles – State Level Tort Reform	

*** These items are not being produced again as they have already been produced to the parties by Grace or the ACC or are publicly available

Reports and Testimony in Asbestos Matters for Dr. Mark Peterson within the Past Four Years

In Re W.R. Grace & Company, 2007

- Deposition Testimony - November 2007
- Estimation Report - June 2007
- Supplemental Report - September 2007

In re Federal Mogul, Estimation hearing, D. Del., 2005

- Trial Testimony - June 2005
- Deposition Testimony - May 2005
- Rebuttal Report - May 2005
- Supplemental Report - April 2005
- Deposition Testimony - December 2004
- Expert Report - November 2004

JT Thorpe, Adv. Pr. No. 04-01438, 2006

- Rebuttal Report - February 2006
- Expert Report - January 2006

JT Thorpe, Bankruptcy Confirmation hearing, 2005

- Testimony by declaration, live cross-examination - July 2005 *
- Rebuttal Report - July 2005
- Expert Report - June 2005
- Correction to Expert Report - June 2005

Thurston, Bankruptcy Confirmation hearing, 2006

- Trial Testimony - March 2006 *

In re Armstrong World Industries, Confirmation hearing, Bankr. D. Del., 2006

- Expert Reports - March and April 2006
- Deposition - May 2006
- Trial Testimony - May 2006

API, Confirmation hearing, 2005

- Testified by declaration - December 2005 *

In re G-I Holdings, GAF adversary proceeding, 2005

- Deposition Testimony - October 2005
- Deposition Testimony - August 2005
- Expert Report - March 2005

In re USG,

- Declaration and Report - June 2006

In re ASARCO LLC, et. al., 2007

- Deposition - July 2007
- Estimation Report - May 2007
- Rebuttal Report - June 2007

March 2009